SIXTH ANNUAL REPORT

PROCEEDINGS

Oregon State Horticultural Society

TWENTY-NINTH ANNUAL MEETING

MEDFORD, OREGON
December 2, 3, 4, 1914

SIXTH ANNUAL REPORT

PROCEEDINGS

OF THE

TWENTY-NINTH ANNUAL MEETING

OF THE

OREGON STATE HORTICULTURAL SOCIETY

HELD DECEMBER 2, 3, 4, 1914

MEDFORD, OREGON

ORGANIZED 1885

INCORPORATED 1909

PORTLAND, OREGON
METROPOLITAN PRINTING CO.
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*Deceased, 1914.
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Michener, C. C., Spalding Bldg., Portland
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Worsley, Mrs. F. H., Svensen
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Leighton, R. A., Yamhill
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Zurbuchen, John, Route 2, Box 129, Hillsdale

AMENDED ARTICLES OF INCORPORATION

of the

OREGON HORTICULTURAL SOCIETY.

Know All Men by These Presents: That we, the undersigned, Homer C. Atwell, of the County of Washington; Frank W. Power, of the County of Multnomah, and James R. Shephard, of the County of Polk, all in the State of Oregon, being officers of the Oregon State Horticultural Society, unincorporated, and having been duly elected to the respective offices hereinafter specified, in accordance with the usages and regulations of said Society, do hereby associate ourselves together for the purpose of incorporation, under and by virtue of the general corporation laws of the State of Oregon, relative to religious, literary, benevolent, charitable and similar societies; and we do make, subscribe and adopt, in triplicate, these articles of incorporation, to-wit:

1. The name assumed by this corporation, and by which name it shall be known, is Oregon State Horticultural Society; and its duration shall be unlimited.

2. The object, business and pursuit of this corporation is, and shall be as follows: (1) The development of agriculture and especially of those branches known as horticulture, floriculture, arboriculture, and forestry; (2) the development of landscape gardening, and of all arts, sciences and instrumentalities likely to elevate the character of the rural population and increase the profits, comforts and pleasures of rural life; (3) the collection, preservation and dissemination of knowledge relative to the foregoing and other kindred subjects; (4) the exploitation and development of all agencies tending to conserve the natural resources of the country, and to arouse the public to an interest in such conservations; (5) to acquire, own, hold, use, sell, and otherwise dispose of and convey real and personal property; to accept, receive and use gifts, devices, legacies, bequests, and legislative appropriations; to borrow money, and execute therefor its promissory notes, mortgages, and other assurances; (6) to do any and all other acts and things which may be necessary, advisable or convenient, for the purpose of more effectually accomplishing the purposes aforesaid, or any of them.

3. The estimated value of the property and money possessed by said society at this time is one hundred dollars; and the sources of its revenue or income is, and will be, dues of its members, subscriptions, donations, devises, legacies, bequests and legislative appropriations, and any income which may be derived from the investment or use of any moneys or property so acquired.

4. The respective titles of the officers making these articles are as follows: Homer C. Atwell, president; Frank W. Power, secretary-treasurer, and James R. Shepard, vice-president. They shall hold their respective offices until their successors therein shall be duly elected and qualified. Their successors in office shall be elected by a majority vote of the members of said Oregon State Horticultural Society who are in good standing and present, and voting, at an annual meeting of said society on the first Tuesday of December, 1909; and on such other day and month of each succeeding year thereafter as may be designated in

the by-laws of said society as the date of its annual meeting, said annual meetings to be held in the City of Portland, Oregon.

5. The location of said Society shall be in said City of Portland, in the County of Multnomah, and State of Oregon.

HOMER C. ATWELL, President,
J. R. SHEPARD, Vice-President,
FRANK W. POWER, Secretary-Treasurer.

We, the undersigned, A. P. Bateham, President; E. H. Shepard, Vice-President, and Frank W. Power, Secretary-Treasurer of the Oregon State Horticultural Society, certify that at the annual meeting of the Society held November 16, 1911, the following resolution was unanimously adopted:

Resolved, That the officers take the necessary steps to file amended Articles of Incorporation placing the legal powers of the Society in the officers and three trustees, in place of the officers alone, as at present.

In accordance with said resolution the following to be known as Section 6 in the Articles of Incorporation will be appended as the amendment thereto:

"Section 6. The management of the affairs of the Society shall be vested in the president, vice-president and secretary-treasurer and three trustees. They shall be elected at the annual meeting each year, which shall be held at such time as may from time to time be fixed by the by-laws. The officers and trustees shall hold office for such time as provided from time to time in the by-laws."

Signed in triplicate and sealed with the seal of the Society this fifteenth day of October, 1912.

A. P. BATEHAM, President,
E. H. SHEPHARD, Vice-President,
FRANK W. POWER, Secretary-Treasurer.

Acknowledged before Notary Public.

AMENDED BY-LAWS OF THE OREGON STATE HORTICULTURAL SOCIETY.

(Adopted November 20, 1912)

ARTICLE I—THE SOCIETY YEAR

The Society year shall begin on the first day of January.

ARTICLE II—MEMBERSHIP

Section 1. The membership of the Society shall consist of annual, life and honorary members.

Section 2. Any person who shall pay the annual membership fee of one dollar shall thereby become a member for the current year, ending with the opening of the next annual meeting.

Section 3. Any person who shall pay the life membership fee of ten dollars shall thereby become a life member and shall be excused from further payment of membership fees.

Section 4. Any person who in the opinion of the Society has done the society or horticulture in general some especially valuable service may be elected to honorary membership by a two-thirds vote of the members present at any regular meeting and shall be excused from payment of all membership fees.

Section 5. Those who were honorary members before the incorporation of this Society shall continue to be considered honorary members, without further action of the Society.

Section 6. All members shall be entitled to the same rights and privileges.

ARTICLE III—OFFICERS

Section 1. The officers of this Society shall be a president, a vice-president, and a secretary-treasurer and three trustees. The last four shall be under bond in such sum as the Society may designate, for the faithful discharge of his duties.

Section 2. The president and secretary shall be ex-officio members of all committees, except the auditing committees.

Section 3. The duties of said officers shall be such as usually devolve upon like officers, in similar organizations; provided, that no bills shall be paid without the approval in writing of the president and secretary; and provided further, that a committee of three, to be chosen annually by the Society, shall audit all bills, reports and accounts and render a report thereon to the Society.

Section 4. The secretary shall, at each annual meeting, render a report showing:

First—The personal property of the Society in his hands.

Second—The irreducible funds, securities and bills receivable belonging to the Society, stating how such funds are invested, and the interest then accrued on the same and on the other securities and bills receivable. Said report shall cover all documents of permanent value or use.

Third—He each year shall render to the auditing committee a complete report of the cash receipts and disbursements for the preceding year, and this report, together with the report of the auditing committee, shall be made a part of the proceedings and printed in the annual report.

Fourth—The premiums offered, and by whom offered, and what was the final disposition of same.

Section 5. The three trustees appointed by the Governor as a Board of Control of the State appropriation, together with the president and secretary of the society, shall constitute an executive committee, which committee shall be empowered to transact any and all business of the society that may be necessary between meetings of this Society.

The executive committee shall from time to time fix the compensation of the secretary of this Society as they may deem the requirements of the office may justify.

ARTICLE IV—DATE OF ANNUAL MEETING

The annual meeting shall be held on such days in November or December of each year as the officers may, from year to year, designate. The officers shall be elected on the afternoon of the second day of the annual meeting. The president, vice-president and secretary-treasurer shall take charge of their office on the first day of January next following their election and hold office for one year, or until their successors are elected and qualified.

The trustees shall be chosen in accordance with the Act of the Legislature so long as an appropriation is given by the State, and unless otherwise provided therein shall hold office for three years. In case the Legislature shall fail to grant an appropriation in any year, the trustees shall be elected for three years by the Society.

ARTICLE V—OTHER MEETINGS

Section 1. Other meetings may be held at such times and places as the Society by vote at a previous meeting may designate.

Section 2. The president may call a special meeting at Portland by causing notice thereof to be mailed to each member at least five days previous thereto, such notice to state the object of such meeting.

Section 3. It shall be the duty of the president to call a special meeting whenever requested in writing so to do by fifteen or more members.

ARTICLE VI—PUBLICATIONS

Every member shall be entitled, without cost, to one copy of all official reports published by the Society.

ARTICLE VII—QUORUM

Nine members shall constitute a quorum for the transaction of business, but a less number may meet, call to order, and adjourn from time to time.

ARTICLE VIII—ORDER OF BUSINESS

The following order shall be observed as a guide in the transaction of business at the annual meeting of the Society:

1. Call to order and reading of minutes of previous meeting.
2. Reports of officers.
3. Reports of committees.
4. Unfinished business.
5. New business.
6. Election of officers.
7. Papers, addresses, etc.

ARTICLE IX—RULES OF PRACTICE

Robert's Rules of Order shall govern the deliberations of the Society.

ARTICLE X—IRREDUCIBLE FUND

All life membership fees, together with the sum of $2,000.00 of the amount heretofore realized from the bequest of the late Cyrus E. Hoskins, the "Lambert Fund," and the "Cardwell Fund," shall be kept intact and invested on good security, so as to produce a revenue, if possible, and only said revenue shall be expended by the Society.

ARTICLE XI—PERSONAL PROPERTY

The secretary shall be the custodian of all badges, banners, dies, medals, blanks, books and other property of the Society of value or suitable for future use; and shall exact from his successor an itemized receipt for said property, when same is transferred.

ARTICLE XII—RECORD OF REPORTS

The annual reports of the officers and of the auditing committee and all reports relative to the finances, or property of the Society, or the disbursements of its funds, shall appear in full in the record of transactions, in the order of their filing with the secretary following the record of the meetings at which the reports were presented. The treasurer's report shall be made to the auditing committee showing a full report of receipts and disbursements and said report together with report of the auditing committee shall be made a part of the proceedings.

Said reports may either be pasted upon said record, or copied, in which latter case the copy shall be attested by the secretary.

ARTICLE XIII.

The executive committee may, if they deem it advisable, lend the assistance of the Society in any display of fruits and products of the State.

ARTICLE XIV—AMENDMENTS

New by-laws may be adopted and old ones changed or repealed by a two-thirds vote of the members present at any meeting; provided, notice of such proposed adoption, change or repeal shall have been given at the last previous meeting of the Society; and provided, further, that a vote to change or repeal Article X shall be by yeas and nays, recorded on the record book of the Society. Said vote shall be taken only at an annual meeting, and after due notice given at the annual meeting next preceding the same.

FINANCIAL REPORT OF THE SECRETARY-TREASURER OREGON HORTICULTURAL SOCIETY.

December 29, 1914.

STATE FUNDS.

To balance per last report			$1,099.09

WARRANTS DRAWN.

Date. 1914.		No.	Amt.	
Mar. 9—	B. A. Mitchell, P. M., 1,000 2c envelopes	39	$ 21.36	
Apr. 4—	State Printer, 2,000 Suppl. Reports Foreign Mkts	40	187.93	
	State Printer, 500 letter heads, Orenco; 500 letter heads, Medford	41	5.20	
	Reverted to State from 1912-13 appropriation; held for printing Foreign Market Report but not needed; State Printer's estimate $257.49, amount actually charged $187.93, difference reverted		69.56	
Oct. 1—	State Printer, 1,200 Annual Reports, 1913, 167 pgs	42	334.86	
Nov. 7—	H. V. Meade, printing 3,000 programs and 1 receipt book	43	15.50	
Nov. 27—	Lincoln-McCord Co., binding 1 vol. buckram, containing vols. 4, 5 and Foreign Markets	44	2.25	
Dec. 4—	Mrs. M. T. Edwards, reporting Annual Meeting at Medford, Dec. 2-4, for 29th meeting	45	100.00	
				$ 736.66
	Balance on hand			$ 362.43

Dec. 24th o. k. per State Auditing Department.

Out of the above amount the following bills must be paid:

H. V. Meade—			
750 clasp envelopes and printing	$9.00		
1,000 letter heads, two changes	4.75		
500 postal cards, pgt. only	2.00	$ 15.75	
R. L. Wann, P. M., stamps and postal cards		110.00	
Metropolitan Ptg. Co., printing and binding 1,200 Annual Reports		215.32	
Frank Myers, P. M., 1,000 2c envelopes		21.36	
			$ 362.43

IRREDUCIBLE FUNDS.

Lambert Fund	$ 100.00	
Hoskin Fund	2,000.00	
Cardwell Fund	218.50	
Life Membership Fund	525.00	
		$2,843.50

Above invested as follows:

Mortgage W. K. Newell, 6 per cent	$2,300.00	
Note J. R. Cardwell, 6 per cent	50.00	
Ladd & Tilton Savings Bank, 3½ per cent	493.50	
		$2,843.50

GENERAL FUND RECEIPTS.

Balance on hand last report	$ 895.93	
Amt. paid by Nor. W. Pac. Land Products Show for hall rent 1912, per agreement	40.00	
Membership 1914 since last report	$ 2.00	
Membership 1915	163.00	
	$165.00	
Less amt. kept by Medford Committee per vote of Society	105.29	
	59.71	
Interest W. K. Newell Mtg. 1 year	138.00	
Postage on Report and cost paid	.35	
		$1,133.99

DISBURSEMENTS.

Sundry expenses, express, freight, etc	$ 7.92	
Addressing envelopes for programs	2.00	
Stationery, Kilham Stationery Co	2.20	
		12.12
Balance in L. & T. Bank		$1,121.87
To this should be added interest on savings account L. & T. Bank		17.35
Total turned over to new Treasurer		$1,139.22
Irreducible Funds	$2,843.50	
General Fund	1,139.22	
Total Funds	$3,982.72	

J. A. Westerlund is now three years overdue on his Life Membership.

Respectfully submitted,

FRANK W. POWER,
Secretary-Treasurer.

REPORT OF AUDITING COMMITTEE.

We, your committee appointed to audit the accounts of the Secretary-Treasurer of the Oregon State Horticultural Society, beg leave to report that we have carefully audited the books and accounts and find them correct as submitted for the period from February 3, 1914 to December 30, 1914.

December 30, 1914.

ALBERT BROWNELL,
E. A. BURT,
H. M. WILLIAMSON.

SUBJECT: BALANCE.

Salem, Oregon, December 24, 1914.

Mr. Frank W. Power, Secretary-Treasurer,
Oregon State Horticultural Society, Orenco, Oregon.

Dear Sir:

After deducting the amount of the two claims enclosed with your communication the balance remaining in the appropriation for the expenses of the State Horticultural Society is $362.43.

Respectfully,

BEN W. OLCOTT,
Secretary of State.

By J. E. Allison, for Auditing Department.

REPORT OF MEETING OF THE OREGON STATE HORTICULTURAL SOCIETY HELD IN THE NATATORIUM, MEDFORD, OREGON, DECEMBER 2, 3, 4, 1914.

WEDNESDAY, DECEMBER 2.

The Society convened at 10 a. m. Neither the president nor vice-president being present, Mr. F. W. Power, secretary-treasurer, suggested that the other officers would reach the city on the 11 o'clock train, and that until such time those present might ask Dr. Henderson such questions as they were specially interested in.

W. G. Smith, of Wolf Creek: "We are planting pears heavily sixty miles up the line, and I am counting on these men to discover a cure for the blight before it reaches us. If we can note any progress in that direction I would be glad to hear it."

Dr. Henderson: "Go after every bit of pear blight that is under the ground at this time. The blight above the ground we can get at and I believe we have been getting it, but there is a great deal of it below the ground that we have not. If we are going to control pear blight we must get down to the roots, and I am advising everyone to thoroughly examine the crown and roots of every tree in his orchard and be sure there is no infection under the ground. A word or two about some things I have observed in blight fighting in the valley that I am not quite in harmony with and some things I am suggesting as a remedy. I have observed in a great many orchards that the blight cutters are not exercising proper care in their methods of disinfecting. I do not know whether it is carelessness or whether it is due to the fact that they have not realized just what they are doing. In a few cases the bichloride solution was carried in an open vessel, and the cutting tools and sponges were freely dipped into it and often allowed to remain for some time. This, of course, would be a very efficient method of sterilization so long as the solution retained its poisonous property, but that certainly cannot be for a very long time. Bichloride of mercury is very sensitive to change when brought into contact with other materials, and unless properly protected, readily loses its disinfectant quality. Most of us have had the experience of having rings and other jewelry tarnished by contact with bichloride of mercury. The same thing happens whenever it comes into contact with other metallic or mineral substances. This means simply that the mercury has combined with those other substances and the strength of the solution has been reduced to a greater or less degree. A similar thing happens whenever this material comes into contact with free organic substances. The mercury forms a precipitate with this animal or vegetable material and thus leaves the solution weakened as a disinfectant, the degree of weakening depending upon the amount of organic matter present. In one orchard the disinfectant was carried in an old tin can which also contained organic matter, thus providing ideal conditions for destroying its aseptic quality. In another orchard the solution, although carried in a closed glass vessel as recommended, had been used so long without change and had been so contaminated that it had become filled with a reddish precipitate. Such a solution is as ineffectual as pure water when used as a disinfectant. Fortunately such extreme cases are exceptional, the solution in general being carried in closed glass vessels and renewed at frequent intervals. The method of application of the solution, however, is not always entirely satisfactory and deserves the most careful attention. The use of the sponge, although the most effective means in our possession, is open to considerable criticism.

One frequently sees a workman wipe his knife, or the wound he has made, with a comparatively dry sponge; and all too often with one which has been lying in the dirt while the cutting was going on. Such a practice will not yield the desired results. The soil and other materials collected in the sponge destroy the poisonous quality of the solution which it carries, so that there is even danger of introducing bacteria instead of killing those already present. Disinfection cannot be successful unless the surface to be sterilized is thoroughly drenched with a clean solution, for the bichloride of mercury will not kill blight germs except by direct contact. It is also common to see the blight cutter wipe the soil from his chisel or other digging instrument with the same sponge that he used for the cutting tools and for the wounds. In this case he not only fails to disinfect the digging tools but renders the sponge unfit for further use on clean surfaces. A separate sponge or cloth should be kept at hand for removing soil from the tools before any attempt is made to disinfect them. No one of us would think of using such a sponge to apply an antiseptic wash to a wound on man or beast, yet the same principle is involved here as in blight disinfection."

Mr. G. B. Carpenter, of Medford: Is there any way of testing the strength of the solution?

Dr. Henderson: No simple way for the orchardist.

Question: Do you find much trouble about four-year-old pear trees about the roots?

Dr. Henderson: Not much has been called to my attention. I would suggest at this time, however, that you look after your Newtown apples as well as your Spitzenbergs. I went out recently with one of the inspectors to look over a Newtown orchard, and it did not take very long to locate a dozen or so cases of blight in the roots. It has been said that blight does not get into the Newtowns, but it is in the Newtowns, and we will have to look after them as well as the other trees. It is also in the Jonathans. We must watch every apple and pear tree if we would control the blight.

Mr. Smith: Might it be found in the roots without any other indication above ground?

Dr. Henderson: Yes, it is; that is why we must dig around and carefully examine every tree.

Mr. Oatman: I have been one of the blight inspectors for quite a while. and my greatest trouble has been this: You will recognize unless blight cutting is done very thoroughly we are handicapped, and especially in the treatment of blight in the roots. One high class and experienced workman may possibly put in $3.00 to $5.00 worth of work on a tree and do a thorough job. Then the man across the way has very little ability as a blight cutter, is negligent in his work and does a very bad job, and the upshot of it is when he gets done he has practically as much blight in the tree as before, and perhaps has painted it over so we cannot tell whether the blight is out or not. The blight is there just the same. My idea is that we are always going to have trouble until there is a more rigid enforcement of the law in what kind of a tree they shall be permitted to try to save. I don't advise any man to save a Spitzenberg when there is any blight in the roots. If it does not come out this year it will next. I think that is where we are making our mistake, in permitting everybody to save old trees not worth saving.

Dr. Henderson: Any suggestions on that question? It is a very interesting one and one I have had to meet several times this summer.

I am glad to know the inspectors are in sympathy with me on this question.

Mr. Oatman: One more word on that question. I can take you into orchards where people have made thorough treatments of their trees, and go across the fence and this other orchardist has made practically the same kind of treatment, but it is as bad a job as a man can do with a bucksaw and hatchet. This is what we are up against.

Dr. Henderson: That brings us to the question: in a cleanup on blight what are we going to do? Are we going to have one rule for all and say that every tree that is infected in the root must come out, or are we willing to let every man take his own means of treating that tree? We are certain that if the trees are not taken out, in a great many cases, the blight will be held over; we are equally certain that with the best possible conditions it may hold over; so my present judgment is that the only safe thing to do is to take the trees out and burn them as soon as we find the blight in the roots.

Mr. Carpenter: I think skilled labor should be the next move. I know of one instance—a man came into our orchards, we inspected his work and found he was not doing it properly, and we fired him, and the next day he turned up on our neighbor's place and is holding the place there ever since. He was not doing efficient work. We might have a blacklist for such men which would allow us to say that a certain man is not a good worker. I think it could be arranged nicely.

Mr. Smith: If there is any blight in our little valley, and I am very much interested in this matter, I think we should compel the careless people who have orchards who are not giving them the proper care to attend to them properly. A man should not be allowed to plant trees unless he lives up to the standard.

Dr. Henderson: I agree heartily with you there, but that thing is entirely without the range of my jurisdiction. This would mean trouble and a rigid enforcement of the law if we are going to clean up in some cases. All tree owners should be active blight fighters. Small family orchards in town or on the farm, old deserted orchards, and old trees in out-of-the-way places must receive as careful attention and be as thoroughly cleaned up as the best commercial orchard in the valley. Combatting blight is not a one-man fight, and no orchardist can hope to keep clean as long as his neighbor manifests indifference on this very vital question. One virulent case of hold-over, under favorable conditions, might readily become the source of an epidemic over the entire section.

Question: Is there any law in reference to this?

Dr. Henderson: I am not familiar with Oregon laws.

Mr. ————: In connection with fighting the blight I think it should be necessary to burn the cuttings of the blight. I have been traveling over various portions of the valley where blight was extensive and they were cutting it out as fast as they could, and leaving the cuttings on the ground to infect other trees.

Dr. Henderson: The disposal of blighted tissues after they have been removed from the tree is a question of considerable importance. Several cases have been observed this Summer where diseased limbs and trees have been allowed to lie in the orchard or near it several weeks after cutting them out, and in one or two instances the orchardist had permitted such branches to dry in the brush heap and then used them for props. I cannot prove that blight infection came from such a prop, but I will make affidavit that I found blight at the point of contact with such a prop. The assumption in these cases has apparently been

that when the diseased member has been cut off there is no further danger or infection from it. The blight germ, it is true, is very readily killed by exposure to direct sunlight or by complete drying, but a considerable period elapses after a diseased limb is cut from the tree before the tissues can be considered dry, even under the most favorable conditions. In fact, it is not uncommon to find branches still oozing blight several days after they have been cut out. Any such material should be looked upon as a probable source of infection and treated accordingly. We have too much at stake in this section to take the chance of waiting for the sun and weather to kill the blight germ. The only safe thing to do is to collect all diseased material immediately after it is cut out and burn it.

Question: What percentage of the trees when the roots have been infected by blight can be saved by constant work?

Dr. Henderson: I suppose if efficient labor were employed it would be possible to save practically all of them, provided the disease were discovered in time.

Question: Considering the price of the tree and the price of the labor, would it pay? It would have to be gone over several times, would it not?

Dr. Henderson: It is my opinion that it is not worth while when the blight gets in the roots. Economically it is better to tear the tree out and replace it.

Question: If the root development had been considerable, would it be necessary to follow up the roots to make it absolutely safe?

Dr. Henderson: I should follow up to be sure that the young trees would be free from contact with them for at least two years. In the meantime the old root would rot and the organism would not be living in connection with it.

Mr. Power: The time has come for opening the meeting. Unfortunately neither our president nor vice-president are present this morning, and it will therefore be necessary for the meeting to elect a chairman. Whom do you suggest?

Mr. Roberts: I nominate Colonel R. C. Washburn as chairman of the meeting.

This motion was seconded and unanimously carried.

Mr. Power: Col. R. C. Washburn is elected chairman.

Col. Washburn: Ladies and gentlemen: This is very sudden, this honor, but I am perfectly willing to accept it. I have been presiding here quite a little, and handling a gathering like this is as easy as rolling off a log. (Applause.) His Honor the Mayor is not present, so I presume I will have to make the address of welcome. I welcome you all. If I had known that I was to preside here and given the address of welcome instead of the Mayor, I can assure you I would have had a much better day—a brighter day. I see some here that are from the north and I want to say that we people in southern Oregon appreciate their presence. "It is a long way from Tipperary" and a long way from northern Oregon down here. I went to Portland the other day, and it takes a good deal of time and some money and I am sure that all the people of Rogue River Valley appreciate the honor that those from the north have shown by coming here to attend this meeting. (Applause.) Of course, untoward things have happened in the last year and the fruit man perhaps does not carry as broad a smile as he has in past years. We are not looking quite as cheerful as we once did for various reasons which I need not mention, but we still stand by the ship and we are going to make a success of the fruit business. (Applause.) We have a lot of problems to meet and these gatherings are

called for the purpose of discussing those problems. We have several matters here that will be discussed in the next two or three days. These problems will always come up, but we are getting ready to handle more of them and the prospects for the fruit grower are going to improve. Now, there must be some eloquent man who can respond to this address of welcome. Mr. C. E. Whistler is not present, but I know a gentleman and he is from another part of the state and perhaps he can act as a substitute, so I will ask Mr. A. P. Bateham, of Portland and Hood River, to respond to this address which I have just delivered. (Applause.)

Mr. A. P. Bateham of Portland responded as follows:

Mr. Chairman, Ladies and Gentlemen: The name sounded familiar but the description was entirely off. I am sorry Mr. Whistler is not here, and not one-hundreth part as he is to think that he is not here. I don't believe Mr. Whistler ever had a greater disappointment in his life than that he could not carry on his duties as president this year. He thought it would be almost the crowning glory of his life, and some of you doubtless know his personal affairs have tied him up beyond recovery at present. Now the state society is very glad to have received an invitation to come to southern Oregon. We would have had a car load here if conditions had been a little different. Am sorry they could not possibly get down here. I did not see many of you up in the northern part of the state, for the same reason perhaps that they are not here more numerously today. But it does pay to get together and every meeting we can get together always produces good. If it were not for the general co-operation and getting together in the broad way none of us would have the optimism that we have now. As the chairman said, all these conditions have been met and there is light ahead. I am chuck full of optimism for the future—little things don't bother me. I believe that all those who are alive and up with the proposition will work out their salvation in the fruit business. We will see more and more of it as this meeting progresses. Thank you, Mister Chairman. (Applause.)

Col. Washburn: In any event we will start off introducing the president of the State Board of Horticulture, Mr. Roberts. (Applause.)

GREETINGS FROM THE STATE BOARD OF HORTICULTURE.

E. C. Roberts, President.

Mr. Chairman, Ladies and Gentlemen: I am not expected to make an address—it is not my purpose, but I am here to greet you this morning, and to bring to you people, the fruit growers of southern Oregon, and the people interested in the horticulture of Oregon, and of the northwest, greetings from the State Board of Horticulture. I don't know that it has been customary for the president to do these things but I think you people ought to know that the State Board of Horticulture is intimately acquainted and deeply interested in the problems you have confronting you today. I think that you ought to know that your interests are our interests—they don't touch our things just as they do yours, but they touch our sympathies, they touch us in the home spot, where men meet on a common level, and I hope this society in its meetings here will understand that the Board is in sympathy with it, and I bring you greetings from the Board. I thank you. (Applause.)

Col. Washburn: I will call for the report of the officers. The president is not here, so for the present we will not have a report from him. Is there any report from the secretary?

Mr. Power: I don't think it is necessary to read the minutes, as they cover several pages and have already been printed. I would suggest that reading be dispensed with.

Upon motion it was moved and seconded that the reading of the minutes be dispensed with.

Mr. Power here read the Secretary's Report.

SECRETARY'S REPORT.

It is with much pleasure that I make this report at Medford—the first time that an Annual Meeting of the Society has ever been held in the southern part of the State, in fact, practically all the annual meetings have been held in Portland, especially during the past few years, and our business meetings must still be held there.

A few of your growers have been making the long trip each year to attend the meetings and those faithful ones have at last been rewarded by having the Society meet with them, and we are promised a rare treat by your local committee in the way of entertainment while here, and I know that this meeting will be one long remembered by the visitors as well as by the people of Medford. We have had a chance to meet and get acquainted.

Financial Condition.

We are pleased to report that the Society is in a good financial condition.

The Irreducible Funds of $2843.50 is the same as in the last report.

The General Fund has about $937.43 in it, to which will be added $138 interest on Newell mortgage, and about $17.35 interest due from L. & T. Savings Bank, from this must be deducted about $12.00 general expenses which will leave over $1070, in addition to what we secure from membership.

This year a large part of the membership of new members from Rogue River valley has been promised to the local committee for expenses. This will cut down our General Fund about $100 to $150, otherwise there would be in the treasury ready to turn over to my successor over $1200, in place of a deficit of over $150 which I inherited with the office.

The full report of the financial condition of the Society will be published in the Annual Report after the books are audited.

There is about $462.50 in the State Funds from which the cost of reporting this meeting, printing the annual report, postage for mailing reports and stationary will be deducted, and think there will be enough to cover all these expenses.

Membership.

The membership is not nearly what it should be or what it could be made, but until my successor is remunerated for the expense of securing new members by correspondence there will be little increase unless we have members from every town who will volunteer to take personal charge of securing the fruit growers in his vicinity to join. If such a work was undertaken by members a very large number could be secured and without imposing a great burden on any one party.

The local Medford committee has demonstrated what can be done along this line by concerted effort, and such an effort should be made in every fruit growing district this year and make the Society more of a real State institution in place of a membership confined almost exclusively to Willamette Valley, Hood River and The Dalles districts.

You have little idea the amount of correspondence it takes to secure new members, although but few will refuse to join when seen personally.

Old membership can be retained to a great extent by correspondence. Let us all work together next year and try to secure at least 500 members. We would then have sufficient funds to do any needed work toward bettering the fruit growing industry.

The money now in the General Fund was mostly made at Apple shows held several years by the Society, but this work is now being done on a much larger scale by the Land Products Show so, that now we have to rely entirely on membership and interest for the general funds.

Amending Articles of Incorporation.

Either the Articles of Incorporation and By-laws should be changed so that the Annual meetings could be held in the different fruit sections or else provision made for holding such meetings as this at which the papers and addresses could be given with a provision that all business done and all officers nominated and elected at these meetings would be ratified at the regular annual meeting in Portland following such meeting as only a few will attend the meeting in Portland. I see no reason why a change could not be made so that all business could be done at the place of meeting or the ratification at Portland be made purely formal.

Foreign Market Report.

Our Foreign Market Report has been in greater demand than anything we have heretofore published, and Hon. H. B. Miller did a good piece of work in originating the idea.

There is also quite a demand for our annual reports from outside the State. This is probably caused by notices, etc., sent to Eastern horticultural papers who review the reports causing considerable correspondence. I have several hundred newspapers on my list to which various items are sent from time to time, and these are almost invariably published, and much free advertising for the State secured.

These annual reports of the Society were published for the first time during my term of office and I trust that every succeeding year will see an annual report printed. Six annual reports and the Foreign Market supplement have been since Mr. Lake retired as Secretary, no effort for state assistance having been before that time except what was done by Mr. Lake and Dr. Cardwell.

Profits Lost to the Society.

Considerable profit has been lost to the Society during the past years by not loaning all the money not actually needed. The Executive Committee have evidently overlooked this matter, although full report of the amount on hand has been published each year and stated at Society meetings. The Secretary has no authority to make loans but I would have been willing to pay the Society 6 per cent interest on money in the general funds, as I know I could have loaned it safely at that rate.

The $493.50 in the Ladd & Tilton Savings Bank draws but 3½ per cent, and the $1,000 to $1,200 in the general fund draws no interest. I presume that had I used this money personally and taken the interest myself no one would have been the wiser if it had been on hand at the end of each year but it has been kept deposited in the Ladd & Tilton Bank and a loss of from $80 to $100 per year sustained.

In conclusion I wish my successor every success.

I have held the office six years and enjoyed the work, but think it is now time for some one else to donate his time for a few years for the benefit of the Society. There are many who are more capable and better fitted for the work than I.

I wish to thank my friends, one and all, who have always so willingly responded whenever called upon to assist in any way and thereby lessen the work of the office and making it so pleasant for the Secretary by their cheerful response.

FRANK W. POWER,
Secretary-Treasurer.

Col. Washburn: Several things have been brought up by the secretary which I have no doubt will be mentioned again when new business is taken under consideration. I believe that I am ineligible to this office because I have not paid my dues to this society, but I did belong to it several years ago and I attended its session in Portland, but it is merely a matter of forgetfulness—I think it has become chronic at present, but I would suggest that the light is still burning and any of us here can become members of this society or renew our membership, and perhaps it might be a good idea, and anybody will be welcome to pass around and put up their dollar. Are there any reports from committees?

Mr. Power: No committees are ready to report at present. New business, etc., will go over until the second day of the meeting.

Col. Washburn: The first presentation of subjects on our program is Apple and Pear Scab, by Prof. Henderson, a recent comer to Oregon, but a gentleman whom we are very much taken with here and whom you will listen to with a great deal of interest. The secretary tells me that the hour is rather late and possibly it might be well to postpone this paper until the afternoon. I will consult the will of the society—shall we postpone Dr. Henderson's address until afternoon?

It was moved and seconded that the meeting adjourn until 1:30.

WEDNESDAY AFTERNOON, DECEMBER 2.

The meeting was called to order at 2 P. M. by the chairman.

Col. Washburn: Ladies and Gentlemen: We will open our afternoon services with a little music. I have the pleasure of presenting Mrs. Isaacs, who will favor us with an instrumental selection. (Applause.)

Col. Washburn: We will now listen to Dr. Henderson on Apple and Pear Scab and, as I announced this forenoon, Dr. Henderson is recently from the east, but has been with us for several months and I can assure you what he has to say on Apple and Pear Scab will be very interesting and instructive.

APPLE AND PEAR SCAB.

DR. M. P. HENDERSON, Jackson County Pathologist.

The apple scab and pear scab, although they are distinct diseases not transferrable from one host to the other, the fungi causing them are so closely allied and their life histories and development are so nearly identical, that I have chosen to treat them together as one disease in this paper. In fact, the difference between the causal organisms consists only in a few minor morphological characters with which we have no concern, the fungi being sister species of the same genus. In the short space allotted to this paper, I shall speak only of those phases of the scab disease which are of most vital interest to the growers, and which must be understood before effective methods of control can be instituted.

History and distribution. These pests are world-wide in occurrence and are among the oldest apple and pear diseases of which we have definite record. Fries reported the apple scab from Sweden almost a century ago (1819), and it was noted by Wallroth in Germany and by Schweinitz in America fifteen years later. Schweinitz found it on Newtown Pippins in New York and Pennsylvania. These diseases are especially favored by moist, cool Springs and Summers, consequently, in the United States, they occur at their worst in the Northeast, Middle West and Northwest, and are serious factors in other sections.

Economic importance. The destructive nature of the scab disease can probably be best appreciated by reviewing a few estimates of loss caused by it in this and other countries. McAlpine of Australia estimated the yearly average loss in Victoria at approximately $194,000 or $48.50 per acre. According to Stevens and Sherman, scab causes an annual loss to the state of Illinois of $6,000,000 or 60 per cent of the total damage from all enemies. Smith says the loss in unsprayed pear orchards in California varies from one-fourth to nearly all of the crop, the damage being divided about equally between the scab and the worm. Wallace estimates the annual loss in New York state, due to neglect of spraying, at $3,537,878, to say nothing of the thousands of acres that are ineffectually sprayed. Similarily he estimates the annual loss in the United States at more than $47,000,000, a large percentage of which is due to scab. Duggar estimates that from apple scab alone the financial returns of many sections of the country are reduced from 25 to 50 per cent yearly. Scott and Quaintance estimate that it often affects 50 to 75 per cent of the fruit over wide areas and not infrequently causes total failure of crop by killing the young fruit while in blossom or soon after. Marlatt and Orton state that loss from scab amounts to many million dollars annually.

Nature of the loss. The enormous loss occasioned by scab is the result of a combination of several rather distinct factors. (a) Early infection in some years, unless controlled, will almost entirely prevent the setting of fruit. Smith has noted that the drop is very great in some seasons due to scab on the young pears when they are the size of small cherries. (b) Scab infections materially reduce the size of individual fruits, and a single lesion frequently causes unsymmetrical development by retarding growth on the diseased side. Green has estimated that there is a 50 per cent loss in size on scabby as compared with healthy fruit. (c) Even though infected fruit reaches a normal size its quality is reduced and its commercial value is practically destroyed by its unsightly appearance. (d) Scab lowers the keeping quality of the fruit by allowing a more rapid evaporation, hence withering, in storage, and by providing means of easy entrance for various rot organisms. (e) Beside the immediate effect on the crop, a severe infection doubtless has a debilitating effect on the tree and may interfere with the normal setting of fruit buds and hinder the development of new wood.

Appearance of the disease on leaves. The scab fungus may attack the twigs, blossoms, leaf-stocks, leaves and fruit, but it appears most prominent on leaves and fruit. It is likely to occur first on the under surface of the leaf, but the upper side may also be attacked. It appears in the form of a superficial, somewhat velvety, olive-colored growth, at first lighter green than the healthy tissues, but becoming darker as the spores begin to form. The lesion tends to extend along the veins and midrib and to diffuse irregularly into the healthy tissues. On the upper surface the infected area appears first as an olive-green discoloration, lighter in shade than the surrounding leaf-surface and dull and somewhat velvety without the natural luster of the leaf. The spots may be few and scattered or they may, coalesce coating almost the entire leaf. The spots may have distinct bordes or they may grade almost imperceptibly into the healthy tissues. They later change to brown and finally, in some cases, to almost black. Frequently the natural form of the leaf is destroyed and it becomes more or less curled, the diseased area often protruding to form a convex surface with a corresponding concavity on the other side. In extreme cases where considerable defoliation occurs there may also be pronounced yellowing of the foliage.

Appearance on the fruit. The lesions on the fruit usually appear first as very small, circular, dark olive-colored spots in the skin of the fruit. As the spot grows older it enlarges and the cuticle ruptures at the center, exposing a very dark almost black underlying tissue whose margins are overlaid with a light gray or whitish border, the remains of the loosened cuticle. Frequently several spots coalesce, forming an irregular patch which covers a large portion of the fruit. In such cases, cracking of the fruit often results and it is sure to become distorted due to the unequal growth of the healthy and diseased tissues.

Appearance on the twigs. Morse and Darrow give the following description of the apple scab as it occurs on twigs and water sprouts: "While the branches were frequently affected near the tip, in many cases the diseased area began one, two or even three inches back on last year's growth and extended back from one to several inches. The bark on the diseased portion of such branches was more or less thickly studded with light brown spots. Scattered spots were, as a rule, oval to elongate in shape, although frequently nearly circular, and were usually not much larger than a pinhead. Quite often, in severe cases, these spots ran together, forming a diseased patch of considerable area which appeared as a scurvy coating on the bark. Close examination of

the light brown spots showed that they were blister-like pustures resulting from the death and pushing out of the epidermis or outer layer of the young bark. In the center of the pustule was a blackish portion composed of the olive-colored conidia or spores of the fungus."

Life History of the Causal Organism With Special Reference to Production of Disease.

Primary infection. With the shedding of the leaves and fruit in the Fall, the tree is left free from scab except for those lesions which occur on twigs and water sprouts, so that next year's infections come from some external source. Two such probable sources have been discussed by different workers. (1) Suumer spores which live over Winter or develop in the Spring from an overwintered stroma, and (2) Winter spores which develop saprophytically in connection with the fallen leaves. There has been considerable difference of opinion as to whether the Summer spores could live over Winter, and the balance of evidence has apparently been against such a possibility, especially in connection with the apple. And twig infections, although repeatedly observed by workers here and abroad, have been considered of slight consequence except in connection with the twigs immediately effected. Now, however, there is considerable reason for thinking that under certain conditions they are a very likely source of primary Spring infections. Germination studies recently carried out by Morse and Darrow on Summer spores taken from lesions on twigs collected in late Winter, clearly indicate that in the Maine climate, at least, it is possible for the Summer spores of apple scab to live over in connection with infected twigs. They conclude from their work "that this form of the disease may be an important factor in the production of early Spring infections." Aderhold, a German worker of prominence, although finding but one or two apple twig infections, observed that pear scab is of frequent occurrence on twigs and emphasizes this as an important means of carrying the disease over Winter. Voges, another German investigator, found the scab as common on apple twigs as on pear twigs in his section of the country and, according to him, the stroma of the scab spot remains more or less dormant during the Winter and produces a crop of spores in the Spring. Smith of California found pear scab infections very abundant on the twigs and gives this as one of the chief sources of Spring infection. He thinks the fungus passes the Winter as a dormant mycelium. From the evidence available at the present time, we may reasonably expect both the apple and the pear scab fungus to live through the Winter in connection with infected twigs and water sprouts, particularly in our mild climate. Whether this is accomplished by means of a dormant stroma or by mature Summer spores which remain viable, matters little, since the end result in each case is the same so far as scab distribution is concerned.

Primary infecton from Winter spores. However important the Summer spore may be as a source of primary infections, it seems rather insignificant when compared with the Winter spores which develop in connection with the dead leaves. In this case the fungus passes the Winter as an active saprophyte. After the scab-infected leaves have fallen and decay has set in, the mycelium, which up to that time had developed only superficially, permeates the entire leaf tissue and during the Winter develops numerous fruiting bodies known as perithecia. These may roughly be described as hollow spherical bodies with thick walls composed of several layers of heavy-walled cells, and with one side of the sphere slightly drawn out into a hollow beak through which spore discharge takes place. Arising from the basal inner walls of these

bodies are numerous oblong, transparent sacks, each of which contains eight two-celled Winter sports. These fruiting bodies develop deep within the tissues of the leaf, but in the springtime their short beaks may be seen protruding through the epidermis as "dome-shaped" pimples which are often large enough to be visible to the naked eye. The spores usually begin to mature and are ready for discharge about the time the blossoms are ready to open. However, the fruiting bodies do not all mature at once, the ripening period being approximately one month in duration, hence spore distribution will cover a like period. According to Wallace spore discharge begins within five minutes after the leaves are wet and is completed in twenty-four hours for an individual fruiting body. Discharge usually takes place through the opening in the projecting beak, but frequently the entire upper half of the perithecium is burst off, thus exposing all of the spore sacks at once. The spores are ejected with such force that they are often thrown half an inch above the surface of the leaf. They are then probably caught by currents of air and wafted to the opening buds of trees in the near vicinity. From what has been said relative to the extended period of maturity, it might be inferred that the quantity of spores released at any one time would be of little consequence, but such is not the case. Wallace found that in forty-five minutes 5630 spores were discharged from a leaf fragment less than one-half inch square. From this he estimated that "if the surface of the ground beneath trees set 40 by 40 feet apart was covered with old leaves well infested with penthecia, there might be 8,107,200,000 ascospores discharged for each tree in forty-five minutes in wet weather." If only a very small percentage of this number succeeded in reaching the tree there still would be sufficient for abundant infections. The importance of this source of infection cannot be overestimated.

Parts of host receiving primary infections. The blossom bud leaves, being the first susceptible parts of the host to appear, naturally are the first to be attacked; and it is a common observation that they are scabbed earlier and often found to be infested worse than those from leaf buds. This is probably due to the fact that they are subjected to both early and late infections. After the blossom bud leaves, the young developing flower parts are the next attacked, probably in the order of their unfolding; and it is common to find well established lesions on the flower stalks and on sepals, petals, and ovaries of the young blossoms. To such early infection is no doubt due a large percentage of the drop of immature fruit which occurs during cold wet seasons.

Secondary infections. It often happens that primary infections are not severe and would not result directly in a large percentage of scabby fruit. However, they produce an abundant crop of Summer spores within eight to fifteen days and thus become the source of future infections. From this time on throughout the season, abundant infections of fruit and foliage may occur whenever conditions are favorable.

How infection takes place. Some authors have held that the fungus cannot penetrate the host except through wounds or rifts in the cuticle or epidermis, but it is very probable that the tube of a germinating spore may bore directly through the uninjured cuticle. Wallace's recent studies of this phase of the subject justify this conclusion.

Late infections and development in storage. The occurrence of scab in storage has been repeatedly observed. It may develop on fruit which appears entirely free from the disease when picked. It differs in appearance from the spots produced in the open. According to Morse and Lewis, "instead of breaking out and producing olive-colored Summer spores, the fungus usually remains beneath the unruptured cuticle; and the diseased portions appear as slightly sunken, small, black, somewhat

shiny spots." The greater part of such infection probably takes place immediately before or at the time of picking and, according to Wallace, may be expected to follow "abundant Fall rains accompanied by fog, or the occurrence of excessive dew." Morse and Lewis record one case in which the spread actually took place in storage.

Control Measures.

Sanitation. Any efforts directed toward the control of scab, to be effective, must be closely correlated with the life history and habits of the fungus causing the disease. We have learned that after infection takes place there is no practical means of arresting the development of the organism, so that all combative measures must be directed toward prevention of infections. It has also been determined that all primary or early Spring infections come from two chief sources—Summer spores on infected twigs and Winter spores developed on old diseased leaves—hence our first effort must be directed toward the elimination of these sources.

With the old leaves the problem is purely one of sanitation. They can usually be very effectively disposed of by plowing them under in the Fall or in the Spring before the spores are mature. This method, of course, will not completely eradicate this source of infection, since it is hardly possible to thoroughly cover every leaf, but it will greatly reduce the chances for further disease. Where plowing is not possible in the proper season, the leaves should be disposed of in some other way. This could be accomplished by collecting and burning them. This method will involve considerable expense, but, in the light of the end to be attained, I believe it justifiable.

A question is frequently asked, "Cannot some spray be applied in the Fall to destroy the fungus in the old leaves?" This would not be practicable for the reason that the fungus is well protected within the leaves and cannot be reached except by some material sufficiently penetrating to also destroy the tissue of the leaves. All our spray materials are primarily for surface disinfection and would not serve the other purpose. Another question sometimes asked is whether a coating of spray over the fallen leaves will kill the Winter spores or prevent their being discharged. The futility of such a thing is readily understood when we consider how thoroughly these spores are protected and the mechanism by which they are discharged. Besides being imbedded in the leaf tissues the spores are also surrounded, as already explained, by a thick resistant outer wall and a thin membranous sack. When mature, the spore sacks protrude bevond the surface of the leaf and the spores are forcibly ejected without the possibility of coming into contact with any coating of spray that might be on the leaf surface. Diseased twigs and water spouts might be cut out with but little extra effort during the regular pruning and greatly reduce the possibility for early infection from this source. It has been suggested that this source of infection may also be controlled by the application of late dormant sprays of Bordeau or lime sulphur.

Spraying. It must not be supposed, however, that scab can be controlled by sanitary measures alone, for with the most careful planning and execution of our "clean-up" work, there will still be some diseased leaves and twigs left in the orchard; and from them there would inevitably result some primary infections. Since it is not possible to entirely arrest the development and distribution of spores, we must make an effort to prevent the germination of those which come to rest on susceptible parts of the host. This can be accomplished by timely application of some protective substance to the host, before infection takes

place. It has been determined for many sections that the first infection usually occurs when the blossoms are about to open, or as soon afterward as favorable weather conditions permit, hence spraying, to be effective, must begin prior to that time. Most investigators recommend that the first application be made about the time the blossoms begin to show pink, but the practical results obtained in some sections of our own state this year suggest that an earlier application may be necessary. The second spray should be applied just after the petals fall, and the third ten days or two weeks later. By this time the young fruit will have grown considerably and there will be new surfaces to cover. If the season is wet, a fourth spraying may be necessary to prevent late infections.

What sprays to use. The question of the most satisfactory fungicide to use in any given locality cannot be answered with any degree of certainty without experimental data covering a considerable period of years. A number of spray compounds which will effectively control the scab have been found, but their relative desirability appears to vary with sections, seasons, and varieties. he Bordeau mixture treatment has proved very satisfactory in many sections, while in others it causes serious russeting of the fruit and has been largely replaced by lime sulphur. In still other instances the lime sulphur has been found to seriously injure the fruit and foliage, and self-boiled lime-sulphur and atomic sulphur have been suggested as substitutes. In the Willamette valley experiment has shown that lime-sulphur gives excellent results in the control of scab, and this treatment is now used by most of the growers. In the Hood River valley, however, while the fungicidal value of this preparation is not questioned, there has been complaint of injury during some seasons. With us in the Rogue River valley where, up to this time, the disease has been of relatively slight importance, the proper scab control is an open question. Our choice of fungicides for this locality must be based upon data collected from a long series of carefully conducted experiments. In the meantime, the best we can do is to apply those treatments which have proved effective and satisfactory in sections of the country most nearly like our own in climatic relations.

Col. Washburn: If any one desires to ask Dr. Henderson any questions on any point he will be glad to answer them.

Mr. Smith: I would like to know the strength of the solution of bordeaux he would recommend.

Dr. Henderson: The strength of solution of either Bordeaux or lime sulphur will have to be governed by the conditions under which they are applied. I should hesitate to say now definitely, for this section of the country, what strength to use; for the dormant Winter spray as strong as you wish, but for the Spring and Summer spray I prefer not to say what strength to apply. I hope during this coming season to conduct experiments that will enable me to say more definitely what we can use; until then I shall advise that we follow recommendations that are given for the Willamette Valley and Hood River. There is a possibility that the lime sulphur is going to do us considerable damage. Some growers in the valley have used it to some extent and feel that they have been injured a little by it, so we may have to start our season's spraying with a solution of lime sulphur or Bordeaux mixture and later use the self-boiled lime sulphur or atomic sulphur; but in my opinion we shall be able to use the lime sulphur throughout the season in this section.

Mr. Allen: Is there anv danger of infection from the apple to the pear scab?

Dr. Henderson: These two diseases are entirely distinct and the

pear scab fungus does not attack the apple, neither does the apple scab fungus go to the pear. If you have both the pear and apple scab you have two organisms. For a long time there was a question as to whether they were separate and distinct, but it has been settled that they are.

Question: I would like to ask if the pear scab is as prevalent as the apple scab?

Dr. Henderson: Yes, indeed; and my observation in the valley this Summer has been that we have it more seriously here than we have the apple scab. In some pear orchards I know as high as 50 or 75 per cent of the fruit has been scabby, particularly on the Winter Nellis. The Winter Nellis is very susceptible, the Bosc also—both more susceptible than the Bartlett. The pear scab is very likely to find all of us sooner or later.

Col. Washburn: The chair understands that the scab is a comparatively recent visitor to this valley. We have asked for all sorts of visitors and contributed heavily to bring them here, but we did not invite the scab. I presume there are sections that are worse off than we are —I don't dare to say, but it might be there are representatives from certain fruit sections here who are familiar with the scab and could enlighten us, and I am certain all the people of southern Oregon would be glad to hear from them. We have fought nearly every known enemy and we have fought them very frequently in the last few years, so if there are any suggestions from any gentlemen from the north (and God knows I don't want to say that the scab is up there), but if there are any suggestions from any of our fruit growers from the north I know we would like to hear them. (Silence.) Evidently they all deny the allegation.

Mr. Allen: I just wanted to ask the doctor one more question. Is it too late to put on Bordeaux now?

Dr. Henderson: So far as the scab is concerned, there is no use putting Bordeaux on now or during the Fall; reserve your dormant spray until as late in the Spring as you can safely apply it.

Col. Washburn: Are there any more questions to put to Dr. Henderson? A glance at the program would indicate that southern Oregon is going to score all its runs in the first inning. I don't know who is responsible for placing our local talent here on the first day, but I want to assure you that it is no attempt of the tail to wag the dog. We will have our second address from Prof. F. C. Reimers of the Experiment Station at Talent. Prof. Reimers has been with us several years making some very interesting experiments and developments and this afternoon he will talk on "Blight Resistance in Pears and Pear Stocks."

BLIGHT RESISTANCE IN PEARS AND PEAR STOCKS.

By F. C. Reimer,
Southern Oregon Experiment Station, Talent, Oregon.

For more than two centuries the pear has been a very popular fruit in this country. At one time it even exceeded the apple in popularity. During the past half century the fruit has usually sold for very profitable prices. In the Northeastern states there is a vast territory well suited to pear culture. In the three Pacific Coast states climatic and soil conditions are almost ideal for the growing of pears. Yet, according to the 1910 census the total number of pear trees and the total output of pears amounted to just one-tenth the number of apple trees and the output of apples.

The question naturally arises, Why is the output of this fruit not greater? It is hardly necessary to answer this question before an intelligent body of fruit growers. Every pear grower is well aware of the fact that the pear is very susceptible to Pear Blight—the most destructive disease known to our deciduous fruits. For considerably more than a century this disease has been a "nightmare" to the pear growers in all of the older fruit regions of this country. In the older pear districts the fight against this disease has been given up by many of the pear growers, and the disease has been the victor. This is due to the fact that this disease usually works rapidly, often persists from year to year, and by its insidious nature baffles the average fruit grower.

The pear industry in the Eastern States has been held in check by this disease. The disease is native to that region and as long as a century ago it began to destroy the pear orchards there. The pear industry had just become well established in the Southern States when this disease made its appearance and practically wiped out the industry. About 1900 pear blight made its appearance in the San Joaquin Valley of California, and its history on the Pacific Coast dates from that time.

The only place where this disease has been fought persistently on a large scale is among the pear growers of the Pacific Coast. But even here the fight has been expensive and in some instances not a successful one. Many growers have not appreciated the fact that this disease must be fought promptly, persistently and thoroughly. For example, in the San Joaquin Valley the disease practically wiped out a magnificent pear industry in two years.

The question naturally arises, Shall we keep up the present fight against Blight? The reply is, emphatically, Yes. The small total output of pears will certainly insure excellent prices. It is also certain that the Pacific Coast, because of its suitable climate, will be the home of the pear industry in this country. If it will pay to keep up the present costly fight against pear blight anywhere it will certainly do so here.

It is well known that the only successful method ever devised for combatting blight is that of cutting out all the affected parts and disinfecting the wounds, but this should not deter us from improving the method nor from trying to find a better one. The science of Plant Pathology is a comparatively new one, and we are still in our infancy so far as methods of fighting plant diseases are concerned. Hence the work of improving our present method, or finding a new and better one, should be pushed vigorously by our plant pathologists.

RESISTANT VARIETIES.

Every pear grower will readily admit that the ideal method of com-

batting pear blight would be to grow varieties which would naturally be resistant to the disease. The speaker wishes to state emphatically that the ultimate solution of the pear blight problem will be in growing such resistant varieties. Can such varieties be found or produced?

It is a fact, well known to fruit growers, that some varieties of pears suffer much less than others from blight. Comice and Anjou are much more resistant than Bartlett and Howell. The pear industry in the South and some sections of the East is dependent on the Kieffer because it is more resistant to blight than our better varieties. There are in cultivation at the present time more than two thousand varieties of pears. Of this number comparatively few varieties have been thoroughly tested to determine their resistance to pear blight. Is it not possible that among this host of varieties some will be found which will be comparatively free from blight, and still be desirable commercial varieties? To show that this is possible, it is only necessary to state that we already have varieties which are known to approximate this ideal. The Lucy Duke, a seedling of the Bartlett, which has been in cultivation for more than thirty-five years, has shown marked resistance to pear blight. This is a pear of excellent quality, and promises to be of commercial value. Another promising variety is the Douglass, which originated as a seedling of Kieffer, probably crossed with the Angouleme. This variety has been growing in central Kansas, in a region where blight is very severe, for fourteen years, but has never shown a trace of blight. It is not among the best in quality but it is markedly better than the Kieffer, and apparently far more resistant to blight.

We have several varieties of poor quality but remarkably resistant to blight. A variety locally known as the Florida Sand Pear, and which belongs to the Chinese Sand Pear group, has been grown in the southeastern States for more than thirty years, under the severest possible conditions; with badly blighted trees of other varieties in adjoining rows, this variety has never shown a trace of blight. The Burkett, is a variety which has been grown in the upper Mississippi valley for the past fifty years, and there under conditions where very few of our varieties can be grown because of the severity of blight, this variety has proved practically free from this disease. The Surprise is another variety from the Middle West, where under the severest conditions it has never shown a trace of blight. Other varieties showing marked resistance are Krull, Fluke and Orel. Other examples might be given, but these will suffice to illustrate the principle that it is possible to grow pears which will be measurably resistant to blight.

Recently a seedling pear in Washington has come to the attention of the speaker which is a late pear, similar to the Anjou in appearance and fully equal, if not superior to it in quality; a late bloomer, and productive. Up to the present time this seedling has proved entirely free from blight, but it is possible that it has never been exposed to the disease. If this variety should prove reasonably resistant to blight, it would mean a great advance in the pear industry.

We are now testing at our Experiment Station hundreds of varieties of pears from this country and Europe, and it is hoped that we will find among these desirable commercial varieties which will not be seriously affected by blight.

Breeding Pears.

The production of blight resistant varieties of pears offers a splendid field for horticultural work, which up to the present time has received too little attention. The speaker is very thoroughly convinced that desirable blight resistant varieties can be produced by breeding. For ex-

ample, by crossing such high qualities as Bosc or Anjou with such blight resistant varieties as Surprise or Burkett, and then growing thousands of seedlings from these crosses, it will be possible to originate a variety which will possess high quality as well as blight resistance. That this is possible has been repeatedly demonstrated with other fruits and plants.

In this connection it should be emphasized that high quality and susceptibility to blight are not necessarily correlated. For example, the Seckel, a pear of very high quality, shows much greater resistance to blight than most of the low quality pears.

Blight Resistant Stocks.

One of the most promising lines of work, and one which offers perhaps the most immediate results is that of growing our commercial varieties on root systems and trunks which are resistant to blight. It is well known that the greatest injury of blight, at least on the Pacific Coast, is inflicted on the root-system, trunk, and body branches. . Here the disease performs its most fatal work; and here it is by all odds the most difficult to combat. The French seedling, on which most of our older pear orchards were budded or grafted, is very susceptible to blight. It is often more susceptible to the disease than many of our cultivated varieties and this is responsible for the large amount of pear blight in the roots in our older orchards.

We now have available an abundance of the Japan pear stock (Pyrus sinensis) which is far more resistant to blight than the French pear stock (Pyrus communis). Where root blight is as severe as it is here on the Pacific Coast the French stock should not be used. The speaker is pleased to note that the local nurserymen are giving this matter serious consideration, and are now propagating most of their trees on the Japan stock. It must be stated that the Japan pear stock has not been so extensively tested in this country as the French stock. Hence we do not know its short-comings so well. It is possible that for some varieties and on some soils this stock may not prove all that could be desired. But one thing is certain we cannot afford to continue to use the French stock.

In this connection it must be said that we may find other stocks for pears superior to either the French or the Japan stock. All of the French stocks belong to one species, **Pyrus communis**, and the Japan stock belongs to another species, **Pyrus sinensis**. These two species grow wild in their respective countries and have come into extensive use because they are abundant and conveniently obtained. At least twenty other wild species of pears have been found in Europe and China. In China, one of these (Pyrus betulafolia) has been successfully used as a stock for their cultivated varieties for many years. This grows readily from cuttings, is a very vigorous grower, and in China is giving excellent results as a stock. Since pear blight has never become prevalent in Europe or Asia we know little regarding the susceptibility or resistance of these species to blight. The Southern Oregon Experiment Station is growing these species to determine their behavior toward blight and their value as stocks for our cultivated varieties. It is possible that we may find in this large collection stocks for our pears which are superior to those now used.

TOP WORKING BLIGHT RESISTANT TREES.

The speaker has already stated that we now have varieties of pears which are rarely, and some never, attacked by blight. The fruit of most of these has little commercial value, but the trees are of the greatest value. We should plant these blight-resistant varieties (on Japan pear

stock) grow them in the orchard for two years, and then top-work them with our commercial varieties. By doing this it will be possible to keep blight out of the root system, trunk, and the main body branches, and thus we can avoid at least fifty per cent of the injury now inflicted. This will increase the cost of the tree, but the increase will be slight, and is not worth considering when compared with the present cost of fighting blight in the trunk and root system.

During the past three or four years the Kieffer has been quite extensively used in the West for this purpose. Up to the present time our commercial varieties have made a satisfactory growth on the Kieffer. In the Eastern states this variety has not proved very satisfactory when top-worked with our standard commercial varieties. The scions would usually grow fairly well for a few years, and then most of them would either die or break off at the union. Most of the Kieffers top-worked in the Eastern states were trees old enough to bear, and, consequently, the grafts were inserted where large branches had been cut off; and under such conditions the union may be much weaker than where the top-working is done by building into small branches. The speaker has observed here in the West that top-grafted Kieffers, even on small branches, will often form a rough, swollen union and while top-budded trees usually have much smoother unions. It is well known that the Kieffer is a hybrid between two very distinct species, and this variety is markedly different from our cultivated European varieties of pears. This probably accounts for so many weak unions.

We now have varieties which undoubtedly are far superior to the Kieffer as stocks for top-working with our commercial varieties. These varieties are Surprise, Burkett, Krull, Orel and Fluke. All of these belong to the species **Pyrus communis**, to which all our commercial varieties on the Pacific Coast belong. For this reason they will make a far better union with these varieties when top-worked than will the Kieffer.

Unfortunately trees of these varieties cannot be purchased in large quantities at the present time. We have these varieties growing at the Southern Oregon Experiment Station, and have already interested some of our nurserymen in them. They should have a supply of these for sale in two or three years.

In conclusion, permit me to say that the pear blight problem overshadows all other problems connected with pear culture. That this problem will ultimately be solved is beyond the shadow of a doubt.

Mr. Powers then read a telegram from Mr. A. Rupert, manager Pacific Coast Products Company, Portland.

Mr. George A. Dorris of Springfield, Oregon, then read a paper on "Filbert Growing in Oregon," as follows:

FILBERT GROWING IN OREGON.

During the past few years numerous experiments in growing Filberts have been made in Oregon and Washington. Many of these experiments have been unsatisfactory. A few, however, notably around Vancouver, Wash., and Eugene, Ore., have produced results that have attracted more than passing notice and have led many observers to hope that the growing of filberts in those localities would soon become an industry of considerable importance. If I had only my own experience to aid me in arriving at a conclusion, I would say without hesitation that

I believe those hopes will be realized. But when I consider that for a period of nearly one hundred years similar experiments have been made by earnest and determined men in various parts of the country, and that today there is not a single commercial filbert grove in the United States, and comparatively few small groves of any considerable promise, I feel that it may be premature to predict that we will succeed. However, that is not only my hope but also my belief. That belief is founded not alone on the small successes that have come under my observation, but also from an analysis of the causes of the failures of others, so far as I know what those causes were.

Owing to the almost universal failure in attempting to grow filberts in this country, later attempts have been largely discontinued except in a few localities. As a natural consequence there is little literature on the subject for our guidance and what little there is, is mostly a record of failure. The most comprehensive writing on the subject that has come to my notice is to be found in a book entitled "The Nut Culturist," written by A. S. Fuller in 1896 and published by the Orange Judd Company in 1912. In a chapter of 20 pages devoted to the subject, Mr. Fuller gives an interesting account of experiments that came under his observation, and of his own experiments, all of which proved to be failures, owing to the blight. On this subject, Mr. Fuller says:

"It is this blight, and nothing else, that has prevented the extensive cultivation of the improved varieties of the European filbert and hazelnut in this country, and not the uncongenial soil and climate, as has been so often 'officially' proclaimed by men whose theories are far greater than their practical knowledge of such subjects. Men whose experience with these nuts has been limited to a few isolated bushes or trees in gardens or nurseries, where they were protected, or beyond the reach of the spores of the blight fungus, as has already been noted in the experience of Prince, Downing, Barry, and my neighbor Butler, of Brooklyn, could scarcely understand why others should remain indifferent to such a promising industry, or why the demand for the trees remained so limited, with scarcely an attempt to plant filbert orchards anywhere in the country. Nurserymen have continued to offer choice varieties at low prices per plant, and to advise their customers to cultivate filberts extensively, even to setting them in hedgerows; and yet home-grown filberts remain as rare in our markets as they were a hundred years ago, and all due to the simple reason that the insidious filbert blight still scatters its spores unrestrained."

Assuming that Mr. Fuller is right in his conclusions and that our failures are due to the blight which makes it impossible to grow the tree, the necessary inference is that if a congenial region can be found, where there is no blight, or, if it is present, other conditions prevail which render it innocuous, there we should succeed. Such sections do exist in England, France, Italy, Sicily and elsewhere along the Mediteranean, where filberts are extensively and profitably grown. From conversations I have had with people who are familiar with the groves of all these regions, I have not met one who ever saw or heard of blight there. Further, all of them describe the climate of the filbert growing sections of those countries as similar to that of the Willamette valley and in some places nearly identical. This similarity of climate, then, is a factor of encouragement to us in this, that if the dreaded blight does exist here, it may not be in so virulent a form as to prove destructive to the trees. From my observation and from what information I can get on the subject, I do not believe the blight exists in the Willamette valley, at least not in a more virulent form than in the filbert growing sections of Europe. If that conclusion is correct I see no obstacle to our success.

The filbert is an improved variety of the hazel. In the United States

there are two species of hazel, the Corylus Americana and the Corylus Rostrata. The last named variety is most abundant and attains its greatest perfection in Oregon and Washington. The first variety abounds in the Middle and Eastern States and is not found in either Oregon or Washington.

In discussing the blight on the hazel Mr. Fuller says:

"This fungus is undoubtedly indigenous, and its host plant is the common American hazel (Corylus Americana). From a very careful search, I have not been able to find any clump of these bushes of any considerable size that was entirely free from pustulous stems. But on these wild plants it seems to do but little harm, for if a stem is killed, another soon springs up from the roots to take its place; but when this fungus invades our orchards and gardens and attacks filbert trees we recognize it as an implacable enemy. * * * * *

"There are certain phases of this filbert blight that are rather obscure and scarcely explainable; as, for instance, its virulence among some species and varieties, and almost if not total absence among others.

"So far as my observation extends, I have never found it attacking the native beaked hazel (Corylus Rostrata), and my correspondents in the Northwest and in the Pacific States assure me that no blight on the hazel nut has, as yet, been found there, and its absence is probably due to the fact that the common hazel (Corylus Americana) is not an inhabitant of these regions."

If, then, there is no blight in our native hazel, and if we procure healthy filbert stock from the blight-free sections of Europe having a climate similar to our own, why should we fail? Yet there have been many failures on the Pacific Coast. But so far as I can discover, these failures have not been due to blight but to the varieties planted, or to the improper assembling of varieties to insure fertilization. It is a foregone conclusion that where blight prevails and we cannot raise the tree, we cannot succeed; but where blight is not present and we can raise the tree, it only remains to ascertain the varieties that are adapted to our conditions. That the trees will do as well in the Willamette valley as any other trees, I am satisfied from my nine years experience, and from my observations of nearly 2000 trees from 2 to 20 years old in that section. While many trees that have been planted have been lost from various causes, I do not know of a single tree that was lost from blight. For these reasons I do not believe that the blight exists, or if it is present, it is not in a form to cause any apprehension. I know of a number of trees probably 20 years old measuring 10 to 12 inches in diameter and having a spread of 20 feet. These trees are all perfectly vigorous and healthy, as are all the younger trees that have had a fair chance, but many of them are not productive. I do not know the variety of any of these older trees, but refer to them to show that the filbert tree will grow to great size in the Willamette valley.

In my own experience with 8 varieties, some of which have not yet had a fair test, I find only one variety, the Barcelona, that give real promise. Mr. A. A. Quarnsberg, of Vancouver, Wash., who has been experimenting for many years and has tried out nearly 20 varieties, informs me that he has only 2 varieties that he can recommend, to-wit: the Barcelona and the Du Chilly. We both had fair success with the Red Avaline, but on account of the size of the tree and the size of the nut, though of the finest quality, it is not to be seriously considered by the commercial planter. The Du Chilly is a vigorous fine-growing tree but is not self fertile. As none of my trees adjacent to the Du Chilly fertilizes it, it has not produced satisfactory results for me; but Mr. Quarnsberg has an English variety which fertilizes his Du Chillys, and he puts it first and the Barcelona second in promise.

Now, having reached the conclusion that we can grow a strong healthy filbert tree in the Willamette valley, and having reached the conclusion that some varieties, especially the Barcelona, and probably the Du Chilly, if properly fertilized, will bear well, the next question is, how much the trees will bear and how regular. On these points I will confine myself to my own experience and will refer onlv to the Barcelona. My first planting of 100 trees, a number of which were Barcelona, was made 9 years ago. The plants were extra fine and bore quite a few nuts the first season. I was so pleased that the next year I planted 200 more trees, all Barcelonas. The greater part of these trees were later washed out by a flood, but each year thereafter I added a few trees of my own raising, until I now have about 600 Barcelonas varying from 2 to 9 years of age. The second year from planting the trees all bore a few nuts, and each year thereafter, as the trees increased in size and age, there was a corresponding increase in yield without a single intervening failure. I can therefore record, that with me, Barcelonas have borne 8 successive crops. That is a record unsurpassed bv any other nut or fruit tree grown in this section, and certainly indicates that the Barcelona filbert in the Willamette valley is in a congenial environment and will pay for all favors bestowed.

I have endeavored to keep an accurate account of the yield of the various trees of different ages with the following results for 1914: four year old trees averaged 4 lbs. per tree; six year old trees averaged 10 lbs. per tree; eight year old trees averaged 20 lbs. per tree. Individual trees did better.

Unfortunately I did not get the exact weight of the nuts grown on the 9 year old trees on account of the ravages of the squirrels, but I am satisfied that the best tree produced not less than 27 or 28 lbs. From these results I feel safe in estimating the yield of a 10 year old tree, at the rate mine bore, at 30 lbs. It is to be considered, however, that my trees are on exceptionally rich river bottom land, conducive to rank tree growth. My largest 9 year old tree is over 7 inches in diameter, is 16 feet high and has a spread of 16 feet. When we consider that our native hazel in the Willamette valley grows probably larger than any other hazel in the world,—often having a stool of 4 or 5 feet in diameter and shoots 25 or 30 feet high, it must be conceded that our soil and climate are ideal for the wood growth of the hazel, and therefore the filbert. Under such conditions I would not hazzard a guess as to the size the filbert will ultimately attain, but if 10 inches in diameter and a spread of 20 feet is the limit, it is enough. Such trees could easily produce from 50 to 75 lbs. of nuts per tree. But assuming 30 lbs. as the limit for a 12 year old tree, with no increase as the years go by, the prospects are certainly attractive.

If the industry develops, many new problems will confront the grower. Blight may later appear. If it does a remedy will doubtless be found in some of the fungicides now in common use. The weevil may also appear and demand attention. If it does, some of the many insecticides now in use will doubtless hold it in check. Up to the present time my trees have been free from these and other pests. I have, however, heard of one grove of 300 Barcelonas from 2 to 7 years old in another part of the valley, which yields well, but 25% of the nuts are blank. This may be the work of the weevil or due to imperfect fertilization, or, which is more probable, it may be due to lack of moisture in the soil on which this grove is planted. I know of another grove of about 100 trees 7 years old, only a few miles from my grove, which has never produced a single nut. I do not know the variety of this grove but it is evidently not self fertile. Such seems to be the case with many of the trees planted in this locality a few years ago. All of these trees are

probably worthless varieties. Some of them, however, by proper cross fertilization, as in the case of the Du Chilly, might prove to be valuable varieties. I refer to these instances as a caution to the prospective planter. If he would avoid the expensive mistakes his predecessors have made, he should plant only such trees as are guaranteed to be true to name and of bearing lineage. Owing to the unsatisfactory state of the industry in this country, it is hard to get any quantity of such trees. To accept any others, the planter will run the risk of almost certain disappointment. With the planting of proper varieties on suitable soil, I have little doubt as to the results.

Filbert imports have increased from 7 millions of lbs. in 1906 to over 12 million lbs. during the last fiscal year. The more familiar our people become with this most excellent nut, the larger will be the consumption. There is no question as to the home demand. The only question is, will we ever be able to satisfy any considerable part of that demand?

I know we can raise the trees to a great size; that certain varieties bear as abundantly and as regularly as in any other country; that the size and quality of our filberts cannot be surpassed; that we are reasonably free from fungus diseases and insect pests; that we have a large amount of rich moist lands apparently adapted to their culture; and, I fully believe that in time the filbert groves of the Willamette valley will rival the famous groves of Naples, Sicily or Terragona.

GEO. A. DORRIS, Springfield, Ore.

Col. Washburn: Is there any further business before this session for this afternoon?

Dr. Macrum: There is living in Portland one of the oldest members, if not the oldest, of this society, who was for a great many years president; he has always been heartily in favor of this Society and this work and has given a great deal of his time to it. I think it would be a very nice thing if we would send him a message of greetings. I refer to Dr. J. R. Cardwell, who was probably president of this society longer than any one else.

Upon motion duly made, seconded and carried it was unanimously carried and the secretary instructed to send such a message to Dr. Cardwell.

Meeting then adjourned.

THURSDAY, DECEMBER 3, 1914.

Morning Session

Meeting called to order at 10:15 A. M.

After a little discussion it was decided to have Mr. C. D. Minton read the paper on "By-Products" written by Mr. A Rupert, Manager Pacific Coast Products Co., Portland.

THE ORCHARDIST AND BY-PRODUCTS

By A. Rupert, Portland, Ore.

Frank W. Power,
Oregon State Horticultural Society,
Medford, Oreg.

My dear Mr. Power: I note that you have me on your program for Dec. 2nd at 2 P. M., to take part in discussion on By-Products or what I presume should be more properly termed By-fruit products, and I am very sorry to advise you that conditions have arisen which make it impossible for me to be present, and I regret exceedingly that I am unable to take part in this discussion by your Honorable body in convention on that date.

As I think it necessary at this time to warn the fruit growers of the State of Oregon against the excessive building plans for By-products factories, either instigated by people with motives entirely sincere and well meaning, but ill-informed on the subject in question, and therefore not prepared to give sound advice and very naturally they will get the growers into difficulties such as we have had heretofore, or by a set of men I believe interested in the establishment of these plants, that are after remunerative positions for themselves, and the latter probably the more dangerous of the two classes.

Nine or ten years ago there was an epidemic in the Northwest of the canning disease and as panics and other disturbances occur in cycles of about ten years we presume that we are now due for another attack of this trouble and I sincerely hope that it will not cost the fruit growers as dearly as the previous one.

During the time mentioned there was some forty-three plants established in the Northwest by promoters, and of these forty-three, there is not one today under the original ownership or management, and only a very few of them operating under different management. All of them without exception, met with financial disaster, and as sure as history repeats itself this will happen again, because there are only a few points in the State of Oregon at present that are capable to logically support canning plants by reason of transportation, freight rates and volume of fruit in bearing, as it takes a much larger volume of fruit to support a canning plant than is imagined by the average community.

Again, a plant to survive competition has to be in position to put up a considerable volume of pack, operated on an economical basis by men of experience and we, at the present time, have in the State of Oregon, several plants that, by reason of poor transportation, high freight rates, small production of fruit or inexperience of management, cannot survive and in fact if they had the best management in the world they could not make a success of the business, these plants will have to close.

It is my opinion that there are enough plants in the State for the present production of fruits, provided these plants were built up to a

volume that would make them pay and this is what will have to be done if the business is going to flourish and be a success in this district and it is useless to try to establish plant at points that cannot avail themselves of water transportation at a fairly reasonable rate of freight to steamer's side, as it is our opinion that in the future half to two-thirds of the canned products from the Pacific Coast will move by water. It can of course be said that we cannot get fruit canned and cannot encourage production without a canning plant, and that you cannot operate a canning plant without sufficient fruit so that it is hard to get the two—the production and the canning development—together. This is very true but if the growers in certain districts wanted to develop their fruit business along the canning lines and they are willing to put in a plant and sacrifice their fruit for one to three years until they get production up to a point where it might pay, then that is their own business, but I would not want to encourage growers to go into a business that would be so highly expensive, as it would be my opinion they could probably market their fruits in a fresh form to better advantage until they had large enough tonnage to warrant a canning plant.

With reference to the By-Product Committee which has been at work for perhaps a year or more on funds donated by different Associations and Societies, would say I cannot see that anything has been accomplished except to resolve that they have too many Apples, and I believe that anybody familiar with the business could have told them this long before they started in and without expense to themselves. They have not furnished anything like a solution of the problem. It is my opinion as well as all of the other people who are interested in the canning business, in the berry growing sections of Oregon, that this is hardly our problem, but is a problem confronting the apple men, and the peach growers of Eastern Oregon and Washington, and we feel that we would be very glad to do anything that we could to assist them in working out their problems except that we do not believe that it is up to us to shoulder their burdens. We think that they will have to work out their salvation by themselves. I wish to say again that I think that growers' organizations before making any plans to go into the canning business should investigate very carefully all of the facts surrounding their particular districts and decide on whether or not they are equipped financially and have volume of fruit, and cheap transportation to water. All of these things in my opinion should be decided on without enthusiasm, and if I can be of any assistance to any growers' organizations in helping them to decide on what is the proper course to pursue I would be very glad to do so as I am interested in building up the fruit industry of the State, if the same can be done along safe and sane lines.

Yours very truly A. RUPERT.

Mr. Bateham: I notice there was not an explanation made in reading this paper as to who Mr. Rupert is, and he may be a stranger to most of the audience. I would state that he is a broker in dried and canned fruits, particularly canned fruits, so that he has knowledge of the business, and while he might naturally desire volume of business, he does not want to encourage the people to make a volume of business that would not be profitable. I have attended a number of the conventions of the By-Products associations and a few years ago operated a cannery at Hood River, and have watched the By-Products work all the time with interest, and I am a conservative on the by-products proposition. There are places where it pays but the tendency of over-promotion, as apparent in this paper, I have deprecated. We have a large problem to solve before there is a profit coming from by-products.

SUMMARY REPORT OF BY-PRODUCTS COMMITTEE:

The By-Products Convention was held in the City of Spokane on November 19th, as per call, copy of which is hereto attached. There were about 200 delegates in attendance and 147 of the delegates registered. A summary of the registration shows 108 from Washington, 15 from Oregon, 11 from Idaho, 5 from British Columbia, 4 from Montana, 2 from Minnesota, 1 from Washington, D. C., and 1 from Tennessee, making a total of 147 who did register.

A summary of the report of the By-Products Committee show that the four Northwestern States had on the 31st of December, last, 505,000 acres planted to apples, and 100,000 acres planted to other fruits, making a total of 605,000 acres. Conceding that one-half of this acreage was of poor selection of location, poor soil, poor cultivation and other deficiencies to make commercial orchards, and estimating only one-half carload per acre instead of a full carload as ordinarily expected from good Northwestern commercial orchards when this planting gets into full bearing, we have the stupendous sum of 150,000 cars of fruit of which 125,000 cars will be apples, against a total of 12,000 cars of apples in 1914.

The transcontinental railroads state that they can furnish refrigerator car service for approximately 30,000 carloads of fruit. The common cold storage capacity of our four States with a proper allowance for a desirable storage in the East will approximate possibly 20,000. This leaves, in heavy seasons, at least 100,000 carloads of fruit to be sold immediately after being picked, or to be sent trampled broadcast throughout the country, or to be cared for in By-Products plants in our own territory.

From the above it is evident that the States of Oregon, Washington, Idaho, and Montana must become manufacturers of by-products, since only a reasonable proportion of the above quantity of fruit can be sold in fresh state; and unless it is manufactured into by-products as a regular standard commercial proposition, as is done so successfully in California, the losses of our States will be, indeed enormous.

The conservation of even so small a crop as that of 1914, is a serious factor. Out of the approximate 12,000 cars of apples constituting the 1914 crop, our four States have, together, a total of 5,050 cars of combined "C" grade and 5 tier fruit not of sufficient size or sufficient grade to wisely be saleable under 1914 conditions.

Need of By-Products plants, then, in order to insure the price of our green fruit, to provide a safety valve, as it were, even for a season like 1914. Less than one-tenth of what our future crops will be, seems, self-evident, and growers must adjust their idea away from the basis of the high prices of the few years ago basis of modest profit on carefully tended, economically managed orchards.

Losses of our low grade fruit not shipped, and losses on over-ripe fruit, such as peaches, pears, apricots and berries—the saving of the "waste," in fact—would be ample reason for the installation of many by-products plants throughout the Northwest.

It must be born in mind, however, that these losses may be enlarged rather than decreased even through the manufacture of by-products, unless intelligent co-operation and direction are given on a comprehensive scale through the entire four States.

If all the excess fruit that cannot be sold in its fresh state, is turned into cider or vinegar or evaporated fruit, the market for that particular product or two products will likewise be overloaded, and so in addition to the losses of the fresh fruit, will be added the losses of labor,

and cost of the by-products. But a survey of the needs of the trade at home and abroad in canned and dried fruits, preserves and jelly, cider and what-not will give us the due proportion that should be manufactured into each one of these products and the proper percentage. This plus the proper central selling machinery will dispose of the products wisely and with profit for our whole fruit and vegetable industry.

By-Products plants now established and finding an outlet in suitable prices, for their products, must not be too sanguine that their established trade will not be interfered with in the future through the multiplication of other plants, without the proper and proportionate manufacture of various kinds of by-products, and without the development of a central selling plants, chaos in by-products will be certain as it has been in the fresh fruit business in the past. For self preservation then, by-products manufacturers, the Committee believes should be the first of all to recognize a serious situation.

For twelve months this Committee, representing the four States, has carried on a careful survey not only of the manufacture, imports and exports of the four Northwest States, but also the imports and exports of the United States and other nations.

On September 10th, at Portland, the Committee called to its aid, five experienced successful by-products men who have since given their time and judgment to the Committee. They are W. H. Paulhamus, of Puyallup; A. W. Moody, of Vancouver, Wn.; E. L. Porter, of Donald, Wn.; J. O. Holt, of Eugene, Ore.; and D. A. Snyder, of Dayton, Ore.

During the last year, the Committee held four public meetings as follows: Walla Walla, Dec. 16th, 1913; North Yakima, April 1, 1914; Spokane, June 26-27, 1914; and Portland Sept. 10, 1914. At the last meeeting over 100 delegates were in attendance and the work of the Committee and the recommendations made were unanimously approved.

The State of Montana does not have a single cannery or evaporator within its territory. Nevertheless, during 1913, Montana imported 60,000 cases of canned fruit, 70 per cent of which were peaches and pears. It imported 40 carloads of cider vinegar and 20 of sweet cider. It imported 125,000 cases of tomatoes, 75,000 of corn, 60,000 of peas, and 25,000 of beans; or a total of 285,000 cases of canned vegetables. Montana also imported fifty carloads of evaporated fruit, of which 15 carloads were prunes, 10 peaches, 5 apricots, 6 apples, and the remaining 14 small fruits and raisins.

The State of Idaho, in 1913, shipped out 175 tons of dried apples; 50 dried prunes; 75 of other fruits; 25 of canned berries; 100 of canned peaches; 25 of canned rhubarb, and 50 of beans. But during the same year, 1913, the same State imported 185 tons of dried apples; 75 of edrid prunes; 150 of dried peaches; 100 of other dried fruits, and 950 of canned fruits and vegetables. Its imports were a total of 96 tons in excess of its total exports.

The figures of Oregon and Washington are still too incomplete to report on here. We know, however, that our imports are heavier than our exports, and that the States of Oregon and Washington each import at least an excess of $2,000,000.00 of by-products annually.

Our present needs in the four Northwestern States are shown by the excess of imports over exports and that the heavy increase of the by-products consumption as shown by the reports of the Committee, and the success of the State of California, all indicate a large output possible from the Northwest, at fair prices, for our own by-products manufacturer.

Through the co-operation of our own railroad, wholesalers, retailer,

and buying-at-home leagues; by a stimulation of lumber camp trade, and with our present home and Alaska needs, surely we can increase our consumption of by-products very materially here in our own home territory.

The cheaper freight rates afforded by the Panama canal will, naturally, decrease the price of by-products to the consumer, making possible a largely increased output without overloading the market as at a first glance might seem probable.

Statistics show the dried fruit output alone in the United States from the year 1899 to 1909, increased 575%. With the present tendency towards decreasing the cost of living, and with the more intelligent understanding of the value of canned and evaporated fruit products, this increase no doubt will grow more rapidly in the future than the past.

The Committee has a number of warnings to sound against stock jobbing plants, ignorant processors, incapable management, wrong types of machinery, and processing, establishment of by-products institutions, unsuited to their territory, and unwise duplications of plants.

It does not deem it advisable to recommend any particular type of machinery or plant for the manufacture of fruit and vegetable by-products, believing this to be a matter for men trained in the operations of such plants to decide upon. This should be one of the first problems to be considered by any permanent organization which may be formed at the Convention.

Communities must be made to realize the necessity of having a careful survey made of the amount of fresh products tributary to the by-products plants, of the cost of construction and operation of the plant, of the proper location, water supply and machinery neeeded for the best results.

The forms of capitalization and the amount of capital needed, together with the management of the plant, the selling of the manufactured goods, the unit of cost and the overhead charges must be thoroughly looked into before any community should start any such a venture. The services of expert, unbiased advisors to look into local conditions should be available in the opinion of this Committee.

The Committee believes that the plant should combine, the cannery, the evaporator and vinegar works, in many cases, for the reason that different grades of products may be handled more economically in this manner. The longer season of operation is brought about in this way, which lessens the cost of labor, the overhead charges and the unit of cost on the goods manufactured.

Realizing that the lack of proper grading of our by-products tends to demoralize the markets and destroy the profits of the grower, the Committee feels that this is one of the most important fields for constructive work in the by-products business and recommends that any permanent marketing organizations which may be formed make this one of its earliest problems for solution.

The Committee is unanimous in its conclusion that a central by-products organization is necessary for the salvation of our fruit and vegetable industry.

Recommendation of By-Products Committee.

Therefore, the Committee unanimously agreed to call this Convention for the purpose of forming a central by-products organization whose functions the Committee recommends shall be:

First—To act in an advisory capacity to all districts contemplating establishing by-products plants, and to employ experts whose services are to be paid for by such districts.

Second—To arrange for a central selling agency for handling of by-products.

Action of the By-Products Convention, November 19, 1914.

The report of the Committee was unanimously adopted by the Convention, and a By-Products Board was appointed consisting of ten members, representing the ten principal fruit districts, as follows:

J. O. Holt, Eugene, Ore.; D. A. Snyder, Dayton, Ore.; Truman Butler, Hood River, Ore.; M. J. Higley, Payette, Ida.; H. M. Sloan, Florence, Montana; G. C. Corbaley, Spokane, Wn.; P. H. Weyrauch, Walla Walla, Wn.; Alexander Miller, North Yakima, Wn.; Conrad Rose, Wenatchee, Wn.; and W. H. Paulhamus, of Puyallup, Wn.

The above Board will meet at North Yakima on December 5th, for the purpose of organizing.

As the attendance at the Spokane Convention was large and very representative and their action in all cases was unanimous, it is believed a move has been made in the right direction which will be productive of great good to the fruit growers of the Northwest.

That the By-Products Board should receive the financial and moral support of every business organization in the Northwest, and especially of the commercial bodies. railroads, banks and press, as these latter bodies are largely and morally responsible for having induced a large percentage of the growers to come to the Northwest and invest their money in an industry which has not been developed along the lines that will safeguard the growers' interests.

While the By-Products Board above referred to cannot save all of the growers from financial loss, which will, in some cases, mean an entire loss of their property, they can, if properly supported, bring about a better condition that will enable a large percentage of growers, who would otherwise lose all that they have invested in the fruit industry, to bridge matters over and finally get on their feet again.

In closing, it should be stated that with the proper system of marketing of the fresh apples and converting the surplus into a merchantable by-products, there is no reason why the apple industry of the Northwest cannot be put upon a sound business basis, and the mistakes of the past corrected. But, to do this, will require the honest co-operation of the commercial bodies, railroads, banks, press and all public spirited men of the Northwest, in conjunction with the fruit growers and marketing agencies.

Respectfully submitted,

BY-PRODUCTS COMMITTEE.

J. S. Batchelder, Secty.

Mr. Minton then read a paper prepared by Mr. H. S. Gile, manager Willamette Valley Prune Growers' Association, Salem, Oregon, as follows:

OUTLOOK FOR PRUNES.

H. S. Gile, Manager Willamette Valley Prune Growers' Association, Salem, Oregon.

The subject assigned to me is not in any sense new, and in approaching it one naturally wonders what new thing can be said.

Perhaps a look behind may give us some suggestion as to the possibilities of the future. Oregon prunes, like many other products possess-

ing much merit, have passed through their period of storm and the producers have had their times of trial and tribulation. Their dark days, however, were not of long duration and may be said to have begun and ended between the years 1902 and 1904. The cause may be attributed to overpromotion in the sale of lands and planted young orchards at the very inception of the prune growing idea in the Northwest, or perhaps to be more correct, we should say underdevelopment of the markets in anticipation of the coming new product. It was not a small task to introduce, or rather to force upon the market, a competitor of the California French prunes, which at that time had just about reached the height of its popularity.

The Oregon prune was not wanted by the wholesale merchants of this country and there was good business reasoning in their objection to placing in their stocks another variety of prune entirely different, unknown, and, according to their argument, of doubtful quality. The result was that for a time when the majority of prune orchards had reached the stage of full bearing that there was overproduction, measured by the demand. In fact, there was no demand. The demand had yet to be created. It would be a long and not uninteresting story to recite the experiences through which we passed at about that period, but that is another story. Suffice it to say that the sales of the product at less than cost of production forced matters in two ways. First, it forced some of the most unlikely orchards and their owners out of the business, and second, the very cheapness of the fruit forced consumption. Then we began to learn some things concerning the necessary application of sterilization processes to the fruit in order to properly fit it for keeping. Also by that method we soon found that the fruit was improved in quality so that there was much less danger of the careless cook serving the fruit improperly prepared.

Orchardists have also learned that there were certain sections, certain elevations, certain soils, certain slopes, where the fruit produces more regularly and ripens the best quality of prunes for evaporation, while other districts can produce the same fruit better for fresh shipment. All of these experiences may be had by the amateur who may wish to become a grower of prunes. He can start assured that he will avoid some of the rocks which have caused wrecks in the past.

Not only had the home markets to be cultivated, but it soon became apparent that if any large success was to be gained we must get into the large foreign markets, and there again those of us who may be said to have pioneered the marketing of the Northwest prune industry, had a still harder struggle, coming, as we did, in direct contact and opposition with the—then called—Turkish prune and the French prune and carrying the battle very close to the base of their supplies. A foothold was gained first in England and from that it has spread until practically all of the European countries, in a greater or less extent, have received our fruit and, had it not been for the war, Italy, France and Switzerland would have this year taken considerable shipments of Oregon prunes. Small shipments only have gone to these countries heretofore. I am referring now entirely to the so-called Italian prune.

During the last several seasons the demand may be said to have exceeded the supply and it should be said frankly that horticulturists should not base their calculations upon these extreme values in forming their personal estimate of the outlook for prunes. However, it is not necessary that they should. The truth concerning the net results of the prune product in Oregon, based upon a fair average of several seasons, makes the story quite good enough.

Just a word here concerning Oregon French prunes. They seem to

be strong growers and certain producers in any place where the other variety of prune does well, but there are sections in Oregon where the French prune seems to be especially at home and the quality produced is not surpassed by any French prune grown in any country in the wide world.

Having recently spent several months in the heart of the producing district in France in the study of prune production, I feel competent to speak upon this matter. The grower should aim to produce good-sized fruit, first, by proper selection of stock, and later by proper methods of pruning. Such an orchard, especially if carried in connection with an orchard of Oregon prunes, will prove profitable and satisfactory in its results. It is distinctive in quality from any other French prune and decidedly superior.

In turning now to the future, there is visible no cloud of any serious consequence except that caused by the war, both in its present effect and its possible after effect, both of which are worthy of serious thought. While it is true that our own country has enormous consuming power, it is also true that we must have the help of the foreign consumers to absorb the present enormous cured fruit supply on the Pacific Coast. Without them we shall constantly have the menace of unsteady prices, too low perhaps at times for profit to the producer. We all know what happened to our markets this season during September and October when the war automatically annulled great numbers of foreign dried fruit contracts, though England, at least, is again taking a limited quantity of our fruits. The most serious question is, however, relative to the purchasing power of the masses in England and on the continent after the war is over. This is an unknown condition upon which we can only venture a guess.

With cheaper transportation under normal conditions abroad we have every reason to anticipate greatly increased demand and were it not except for this very one serious condition there could be nothing in the market situation which would not easily justify the demand for doubling as speedily as possible the present prune acreage of the Willamette Valley and in other districts where the best evaporated product is now being made.

This writer more than six years ago advised increased prune planting in more than one public address and at the same time advised against the planting of apples in districts where prunes could be successfully produced. Some may feel that apples have reached a very low level of value—on account of, shall we say, overproduction or underdevelopment of markets—will reduce the demand for prunes and consequently additional planting will be a mistake. I hardly think so. Except for the limited effort of the Willamette Valley Prune Association, a small cooperative organization in Salem, nothing has been done yet to advertise the excellent food value of Oregon prunes to our own people in the United States. A very small percentage only of the wholesale merchants of the United States carry Oregon prunes as a regular item of stock, and I seriously doubt if 10 per cent of the retail merchants in the United States have ever sold them. One reason for this situation is that we have in the Northwest no other considerable amount of any other variety of cured fruit which we can include with our prunes to make up carloads and not many wholesale merchants, only the very largest of them, can afford to purchase Oregon prunes exclusively in carloads of 40,000 pounds. When it was possible to ship 20,000 or 24,000 pounds as a minimum it was not so bad. Fruit men of the Pacific Coast, especially in the Northwest, must strenuously resist in the future any effort on the part of the transportation companies to increase the minimum of any figure above 40,000 pounds.

The discrimination of transportation companies against dried fruits in the rate charged as compared with canned salmon and some other Coast products has already cost them the bulk of this traffic, which is now being forced to find its way East by water. Growers should prepare to make some large general effort to advertise their product. This was seriously considered in 1903 by many of the growers in Oregon under the direction of the Willamette Valley Prune Association, but had to be abandoned because at that time it was impossible to secure the necessary funds. You have noticed today the national publicity which is being given through the magazines to raisins, oranges, grape fruit, etc. There can be no doubt that national advertising, where there is national distribution, is today being handled in a scientific, business manner and that it pays tremendously goes without saying. Can we improve the quality of our product? Most emphatically we can. In fact, we must do it, and there are many methods of preparation and packing the fruit for market as yet untried by the Oregon packers.

Great progress has been made, especially in improving packing methods, but I must speak plainly here concerning the greatest evil which the industry has to contend against today. It has been with us from the very beginning. In the early period of the industry there may have been some excuse because people did not then know any better. They had to learn how to properly cure their fruit. It must in fairness be said that the great majority of the prune growers in the Northwest do today exercise their very best knowledge and to place upon the market a well cured, clean, good wholesome product, but there is another class who not only will not learn, but evidently do not want to know. In fact, they are too dishonest to turn out an honest product. These men care nothing for the future of the industry or for the troubles of the various men through whose hands their product must pass before it is finally consumed or dumped, mouldy and rotten, into some retail merchant's waste barrel. It effects them not at all to tell them that their fruit will not keep, that it will make enemies forever of perhaps a great many merchants who will innocently get hold of this trash, to say nothing of thousands of consumers who will eventually get the half fermented, mushy stuff upon their tables and forever swear off from eating Oregon prunes.

If this condition continues, what avails it to spend money to advertise our product when a certain percentage of the goods go upon the market annually in this shape. You say, "Don't buy it." We don't and reliable packers don't, but there is in the packing business and pernaps there always will be, a certain element so hungry to do business that they, too, have lost sight of all the higher principles of business, and these unfit prunes are always bought by them. Of course, the inevitable end of the packer is failure sooner or later, but by a run of fortunate market conditions he may last through several seasons and during that period can do the industry untold injury. I could point you to any number of wholesale dealers and to the trade in more than one entire city where they have quit buying Oregon prunes for no other reason than that above stated.

It seems to me that the time has come and that there is no other alternative except to compel this small minority to become honest. We must have some sort of legislation which will fix a fair, reasonable standard for Oregon cured fruit, to which both grower and packer shall be compelled to measure up and with this law there must be provided the necessary machinery to make it decidedly effective. Give us this and I believe the outlook for prune growing in the Northwest is decidedly bright. Without it the majority cannot build up the trade fast enough to overcome the counter effects of the careless, dishonest operator.

The outlook for the Oregon prune as a steady, profitable, horticultural industry is decidedly bright except for the two exceptions noted above, both of which will eventually be eliminated.

Col. Washburn: We will take up the horticultural law. There are several here who have given this law considerable work for the past year or two. We have with us today Dr. Cook, Commissioner of Horticulture of California, who has been giving horticulture in all its branches considerable consideration, and he can outline what has been done and what has been talked about. He was present at the Fruit Growers' Convention in that state.

Dr. A. J. Cook, Commissioner of Horticulture for California, then read a paper on "Uniform Horticultural Laws."

Just before starting his paper, Dr. Cook gave a most cordial and urgent invitation to attend the Panama-Pacific Exposition in San Francisco in 1915.

UNIFORM HORTICULTURAL LAWS.

Mr. President, Ladies and Gentlemen of the Oregon State Horticultural Society: It was very kind of the officers of this Association to invite me to address you at this time and to discuss a question which is of commanding importance. It was as easy as on that previous sion, immortalized in story, to say "Barkus is willin'." One would have a treacherous memory indeed who would soon forget the delightful occasion when we met at Portland in June, 1913, in that union convention and when Oregon played the host in such a masterful fashion that we were all charmed. I trow we all then and there hoped that very soon we might again be guests of the courteous, hospitable folk of this great commonwealth.

I have to meet another large debt to Oregon. We have held of late two important conventions in our State. The one, a potato emergency convention, was attended by the president of your State Board of Horticulture, Mr. E. C. Roberts. He did much to make the occasion one of great value to our people, and was also a very great aid in committee work. At our recent State Fruit Growers' Convention, held in Los Angeles, Mr. M. McDonald presented an able paper on this same subject, "Uniform Horticultural Laws." He also served on a very important committee. We were glad and grateful for his wise and timely suggestions. If by coming here I may contribute even a little to make this occasion more instructive and helpful I shall be richly repaid.

Uniform Laws.

It needs no argument to convince any thoughtful person that in all matters relating to business that are not exclusively local uniform laws are imperative to the highest success. As a people we Americans have been slow to appreciate this seemingly axiomatic truth, else we would not have such a glaring travesty on sensible law making as this: That a man may be legally married in one state, unmarried in another and a bigamist in a third. We would not be humiliated by the too common event of a man's hieing to another than his own state to be freed from the most solemn vow and pledge that one ever makes. It goes without saying that in all interstate relations there should be one governing law. Have you ever been subjected to the vexations of money changing and "pawing" of baggage as you passed from one European country to another? If so, you will be a quick convert to any course of action that secures uniform laws.

Uniform Horticultural Laws.

Diverse laws in the several counties of the state, or in the separate states of the country, are a sore evil, as they are confusing and most perplexing in all intercounty and interstate trade. In California we have fifty-eight counties. All but four of these grow fruit, and so are patrons of the nurserymen. Each county can formulate a separate ordinance which is the equivalent of a law. In the nation there are forty-eight states. Each state can and will enact its own distinctive legislation. Thus in California we might have over one hundred laws regarding the same fruit, regulating its shipment. Each nurseryman would require several lawyers to do business and every fruit grower who wishes to purchase nursery stock would stand in urgent need of at least one first-class legal adviser. It should be the aim of every state and community to foster and encourage trade. These diverse laws are a most serious handicap on all legitimate business.

A Positive Necessity.

I was in California from 1863 to 1866. At that time there were almost no serious insect or fungoid pests there. Now very destructive fungous, bacterial and insect enemies are counted by scores. If we had had our present quarantine laws and competent inspectors in the sixties we would have held at bay the hosts of despoilers whose fell work now costs us upwards of a million dollars annually simply to control and probably as much more in the ruin which they cause, despite our control measures. I am bold to say we could have kept them from our shores, for of late we have made no new importations. Such nearby destroyers as the Mexican orange maggot, the Mediterranean fruit fly and the alfalfa weevil are powerless to break through our splendid quarantine. When one thinks that the codling moth, the several scale pests and the blights might have been barred out he can but lament deeply the ignorance and consequent inaction of that early day. Other states have had a like unhappy experience. Millions of dollars would have been saved our sister states of the East had they known the frightful havoc which would ensue with the advent of the San Jose scale. Want of knowledge and consequent lack of vigilance permitted the spread of this pest wide over our country, and it is there for keeps and to despoil for all time to come. Need I say more to convince you of the necessity of wise quarantine regulations and efficient inspection? Those in our state entrusted with this work spare no pains to acquaint themselves with the world-wide pests and are equally active to bar them from our fields and orchards. Each state is more safe when all the states act vigorously to the same end.

The Law Makers.

In our country there are four law-making bodies—congress for the whole country, the several legislatures for the various states, the boards of supervisors for the counties of each state and the commissioners or city councils for the municipal governments. Were we all equally interested in fruit growing, then exclusively national laws would be wise and serve us best. This would insure uniformity, but so many states are principally interested in other industries that it may take years to reach the ideal of a national law that will protect all the people of all the states. This is surely a "consummation devoutly to be wished," and we should all be zealous in our endeavor to hasten its accomplishment.

State Laws.

We now come to the crux of the matter viewed from a practical

standpoint. We can frame a state law which will meet the needs of the state, and we will be most happy if we can persuade other states, especially those near at hand, to enact the same law, or others which are identical in all essential particulars.

Necessary Features of the State Law.

The state law should provide for a horticultural commissioner appointed by the governor. This commissioner should be technically trained in horticulture, entomology and mycology and be one who has proven his practical ability by actual experience. He should have power to separate the state into districts and to appoint a deputy for each district, together with sufficient inspectors to safeguard the same. The deputy and inspectors should be trained men appointed under civil service rules. He should also have power to examine fruit, fruit trees and plants and all nursery stock, and if any of these are found to be infested with dangerous pests to treat or destroy, as the safety of the fruit growers would require. The commissioner should also recommend to the legislature for enactment all necessary laws to protect against the introduction of pests in intercounty shipments and also against the introduction of pests from other states. He should also have power subject to the approval of the governor of the state to declare quarantine in emergency cases which might arise in the intervals between legislative sessions. This will insure that every part of the state has protection, that all officials are trained and capable and that all parts of the state act under the same law. It will also remove the embarrassment which is experienced by nurserymen where there are diverse laws regarding the shipment of nursery stock. Nurserymen from other states will also be able to inform themselves easily regarding shipments, as the one law prevailing will be easily procured. Until we can secure Federal legislation, we should all strive for a state law and should make every effort to induce all other states to enact the same law.

County and Municipal Legislation.

In our state, California, the county is the unit and includes all cities within its limits. This was the only possible measure when it was enacted and it has served an admirable purpose, but it has, however, decided faults.

The county horticultural commissioners are appointed by the Boards of Supervisors, and so politics are likely to influence, which is always to be regretted. The supervisors are very often poorly qualified to make such appointments. Our law requires that any candidate for the office of county horticultural commissioner shall be examined in the county which he desires to serve. This is likely to result in the appointment of a man not properly qualified. Again, as the supervisors make the appointment and the county pays the salary, the supervisors at the suggestion of the commissioner can declare any quarantine against intercounty shipments not in conflict with state laws. This has resulted in several different quarantine ordinances regarding the same fruit and is very embarrassing to dealers in nursery stock. It is, therefore, a very serious handicap to the business and not infrequently results in no inconsiderable loss. While our law has done much for our state, we feel that it should be amended. The subordinate officials in the service should be specially trained for the work, and there should be a unity in all the service, which can only be secured when the entire work is placed in the hands of one thoroughly competent official who has ability, energy and culture which will enable him to scan intelligently the whole field and work for and contribute to the greatest efficiency. In other words, the

state and not the county should be the unit and should have sole control of this important public service.

In conclusion, let me say that Mr. McDonald of your Society has with others made a draft of a bill which I think is excellent in all essential particulars. I would favor some slight changes in details. To illustrate: This bill, if I remember correctly, places the appointing power in the hands of a board consisting of the governor, president of the agricultural college and the chief justice of the supreme court. I would place this appointing power, as also the power of removal, in the hands of the governor. I am no believer in divided responsibility. There are other points which I would change, but, like the above, they are quite non-essential and should not be mentioned even, if so doing would jeopardize the enactment of the bill, which, on the whole, is very admirable. I suggest that any of you who are interested secure the proposed bill and give it a thorough study. I feel sure it meets the necessities of the case.

A. J. COOK, State Commissioner of Horticulture.

Gentlemen, if we do our work well and faithfully Oregon is the gainer, and my main object in coming here was that I wanted to help you perfect your law, because we are all selfish—I hoped that you would get a perfect law and in that case California would be the gainer. I want you to have the best inspection that can be had. I was pleased to hear last year from British Columbia that they are doing their work so well. There is no country in the world, I believe, better guarded than Vancouver. Thank the Lord for British Columbia and the British possessions!

I heard a man say this morning, "We want our own inspectors." Now, I would say amen if you have the best men, because the man on the ground has capital, those of you who have lived here know what you want, but if I by experience—if I have the best eyes, then you better come and get me, certainly if I am a better inspector. I was commissioned in California to get 22 men and I went out of the state and got four of them and they did not accuse me of politics because I had never seen the men. I have always been a Republican—maybe I am no better for that; when I got the men I found two of them were Democrats. Think of it! I say emphatically get your good men; if you have them here in Rogue River valley get them here, but if you have not, go elsewhere.

If you get this law the most important thing is to get good men, and don't think you must have them from your own village. Get the best men, no matter what their politics—but be sure and get the best men.

Thank the Lord we have a magnificent civil service system. A lot of men are examined and if they stand a test and the test is on practical experience those men are on the job. I wish you had a good civil service law—work for it.

Mr. B. Sheldon: Do you find the civil service law prevents removing them?

Dr. Cook: It certainly does. We can remove a man if he was not fit on no other grounds. We have a number of men that have passed the examination that are fit. The law states that those in position should stay there, so whoever is competent will remain. I hope that will be the case here. If you have commissioners here and they are competent let them stay here because they have home experience. In this way there is no turning out good men, no getting in men from mere personal or political preference, so I hope you will have this system. But if not, insist on thorough examination. Don't have a single one that has not been examined. I am putting this strong, but we have had the experience.

I believe a law is better than an ordinance. Each case should go before the legislature and have this work gone over by committee, then by a state committee, then by an interstate committee, as this law has been, then I would go to the legislature and ask for a law.

We have a magnificent governor—I think he is one of the great men of the world. I said to Governor Johnson, "This is going to make a fuss, but I am going to declare a quarantine against Nevada, against the alfalfa weevil." He said: "I have confidence in you and I will stand back of you." Gentlemen, was not that a good answer?

I am not like Mr. Roberts in the mere matter of quarantine. I want one that can be made absolute. We found this necessary to protect our interests against this pest. The alfalfa weevil is a tony chap. We raked the railroads with a net. We found seventeen of them in a Pullman sleeper.

When I came to Sacramento I went to our governor and I said: "I have twenty-two men to appoint. What are your rules?" He said: "Only two—efficiency and no politics."

(Applause at end of paper.)

Col. Washburn: I think we can ascertain just what we have done here so far as the state law is concerned by calling on Mr. Roberts; then I shall ask Mr. McDonald to supplement anything that either of these two gentlemen have said.

UNIFORM HORTICULTURE LAWS.

E. C. Roberts, President Oregon State Board of Horticulture.

Mr. Chairman, Ladies and Gentlemen: I think perhaps I am a little pessimistic—they say the difference between a pessimist and an optimist is that the optimist sees the doughnut while the pessimist sees only the hole in the doughnut. Perhaps it is due to my pessimism in a way, and perhaps due to the lack of scientific training on the subject of entomology, that I failed on some points, but I want to assure you people that it has not been the custom of the Oregon commissioners when they have found bugs to the number of twenty-seven in a Pullman sleeper to call them "alfalfa weevil!" I hate to plead ignorance as your horticultural commissioner, or chairman of your State Board of Horticulture on the subject pertaining to entomology, but I plead guilty this time.

They say experience is a dear school, but some of the people will not learn in any other way. When I was appointed to the position of president of the State Board of Horticulture I was very short on experience on some points, particularly in the matter of the necessity for uniform law and uniform inspection organizations, and uniform inspection work. We talk a great deal about co-operation and we talk about organization, and after it is all said and done, what is it? It is uniform work, it is uniform inspection, uniform packing of fruit, and uniform action in every line of work that we take up. One of the first calls that I had on the appointment to my present position was along the state line, over between Oregon and Washington. We found there a very serious condition—our inspectors were working for better conditions, but on the Washington side nothing at all was being done. In the Walla Walla valley, a part of which is in Oregon, and part in Washington, the larger fruit section of this valley being in Oregon, and owing to the revision of the Washington laws, which at the last session of the legislature they repealed some of the laws and stripped their inspectors of considerable

authority and so found themselves at fault in the matter of authority to carry out a number of the provisions of the law. We found at this state line that a man's house would be on the Washington side, his orchard on the Oregon side, and another man's orchard on the Washington side and his house on the Oregon side, and no one seemed to have jurisdiction to reach these men. He could not go to the Washington side to serve papers and he found difficulty in the enforcement of the law at that point. I talked the matter over with some of the members of our body and we got in touch with the commissioner of Washington, with the result that we held a meeting over on the state line. Now here we began to co-operate—we began to get uniform action. We got in touch with those people, we organized a state line association. We met in the state line warehouse and we got them interested in each other; we got them interested in uniform action, with the result that that district has undergone a wonderful change and conditions are improved. The result of uniformity of action I think we are going to get in the uniform horticultural law. I think perhaps I am safe in saying that there never has been a law presented to any state legislature in the United States that has received more careful attention than has the present law that we hope to be able to present to the Oregon legislature this Winter, and to which we hope to have the endorsement of this society, and the hearty co-operation of the fruit growers of this district. The consideration of the law commenced some six years ago—we then began to study the question of uniform inspection. The nurserymen were perhaps the first to feel the importance of the law; they found that in shipping stuff to the adjoining states that they would go to one county in the state and the shipments would be turned down; if they happened to have an order in an adjoining county and could send it to the adjoining county it would be passed. These things are now a great deal of expense. It has cost the nurserymen of this country thousands upon thousands of dollars and so they have been personally interested in the question of uniform inspection law. I would not have you believe that they are philanthropic in this law. They tell a story of Abraham Lincoln and Horace Greeley, who one day took a drive out in the country in a stage together. Lincoln stated that no man ever performed an act except from a selfish motive. They reached a very muddy stretch in the road and saw an old sow and a young pig down in a mudhole and the old sow was trying to encourage it, but to no avail. Lincoln turned to the driver of the stage and told him to stop, and he climbed down out of the stage and picked his way through the mud and got hold of the pig and set it over on the solid ground. When he climbed back into the stage Mr. Greeley said: "Now, you have just done an act that contradicts the statement that you have just made to me—that no man ever performs an act except from a selfish motive, and I would like to know your motive." Lincoln said: "I had to do it for self-protection—I had to get it out of the mudhole or I would not have slept for a week."

Selfishness does not always mean that we are interested purely in dollars and cents and that we have no motive beyond our pocketbooks, but there is a selfishness that works for better conditions, and that is the selfishness that has prompted this committee that has had this under consideration for more than two years. We had a committee from this society to prepare a bill looking toward uniform horticultural laws and uniform inspection systems. That committee prepared the bill and they, in conjunction with the horticultural committee from the State Board of Horticulture, composed of three members, met and thrashed out this bill. In that committee was the chairman of the American Association and the Pacific Coast Association of Nurserymen—I think I have those terms correct.

The nurserymen had also prepared a bill. The two bills were compared and the best taken from each, and then we went to the governor and we called a convention from the Pacific Coast, the Northwest and Rocky Mountain states, and asked the governors of these states to send delegates. This convention met in Corvallis last week. We had all the members of our Board of Horticulture, Dr. A. J. Cook, commissioner of horticulture for California, had representatives of the committee from this society, had the vice-president of the Pomological Society, the horticulturist and plant pathologist of the O. A. C., Mr. McDonald, the chairman of the horticultural law committee from the Pacific Coast Nurserymen's Association, and the American Association. This whole committee went over the bills again and selected from each bill the very best that they could find and worked it over again, and when that had been done there was a committee from this committee appointed, consisting of Mr. McDonald, Dr. Cook from California, and Mr. Ray Roberts, who has been working on the bill for several years, to take out the very best and put it in a shape to be presented to this meeting. These men were empowered to call in specialists and meet with men who would be likely to be in close touch; men who understood orchard work from a practical standpoint, and these men have gone over the bill and worked it over so as to meet the scientific need—the practical need to protect the interests of a community like this that you have here. Take this community—the Medford district (we always speak of it as the Medford district), has its own problems—has conditions that other parts of the state has not, and perhaps some that the rest of the Pacific Coast does not enjoy—and you have special problems to be worked out, and we have attempted to make the law so elastic and for the best interests of the horticulturist that your particular section can be safeguarded and your interests protected to the limit.

Now, friends, I don't think it is necessary for me to detain you a great while. I want to show you what we have been trying to do and call your attention to the work that has been done on this bill. I don't want you to think for a moment that Dr. Cook in referring to that word "quarantine" believes according to what he said to me—that I am derelict. However, if nothing else will do, if nothing else will suit the doctor, we will stick on the quarantine and make her a dandy! In our meeting at Stockton we threshed over the quarantine subject quite thoroughly, and every time I opposed the word quarantine, but I put emphasis upon the question of inspection—not only here, but in California, uniformity of action, absolute unselfishness—that thing that protects the interests of our fellow men. "Am I my brother's keeper?" is the question that is up for us to consider, and the result has been this: We have not had to condemn any more California potatoes. They got the idea that our inspectors were on the job and any time a potato looked like it had a moth in it—if there was a single moth in that car load, that they would have to go back to California before it would be unloaded—that we would not take any chances. Now, I think in that kind of action we have accomplished the work of the quarantine system and a quarantine is left upon the California potatoes and we have not worked a hardship upon the man who has absolutely clean potatoes. We have not the machinery, we have not the money necessary, and at the present time Oregon will not provide this implement of warfare and make that quarantine effective. There is nothing today in the way of the quarantine that could possibly be put on except a blanket quarantine, and you can see this would be an injustice to the men in the other districts and we don't want to work any injustice upon any one.

Now, friends, it is almost noon, and time for Mr. McDonald, who has

done a considerable amount of work, has carried this bill to California, who will carry it this coming week to Washington. He has something very interesting along this line of work. You will find him interested not from a selfish motive, excepting to do good to everybody concerned, and I bespeak for you a great pleasure in hearing Mr. McDonald.

UNIFORM HORTICULTURAL LAW.

M. McDonald, President Oregon Nursery Co.

Mr. Chairman, Ladies and Gentlemen, Members of the Oregon State Horticultural Society, I am pleased to be with you this morning and have an opportunity to discuss with you the subject of Uniform Horticultural Laws.

Dr. Cooke and President Roberts of your State Board, have shown the great importance of more uniformity in our Horticultural laws. It may not be amiss for me to tell you something of the work that has been done along this line.

At the joint convention of the Pacific Coast and American Association of Nurserymen, held in Portland June, 1913, the subject of Uniform Horticultural Laws received considerable attention,—with the result that a committee was appointed to inaugurate an educational campaign for Uniform Laws in each of the different states. As a member of that joint committee, I have had considerable to do with the work of getting together the different laws in effect in the several states. A very large correspondence has been carried on with State Board of Horticulture, Inspectors, Agricultural Colleges, Horticultural Societies, and others interested in this subject, and I want to say that through all this correspondence—covering a period of about two years, all have expressed themselves as in favor of Uniform Laws. Many stated that in their opinion we had undertaken a big proposition, and that it would take a long time to bring about this result. This was realized by the Joint Convention at the time the committee was appointed, but I am pleased to say to you that the work has progressed much faster than we anticipated it would in the beginning and especially is this true on the Pacific Coast where we found the leading Horticultural authorities almost a unit for some form of Uniform Law.

The principle of Uniform Horticulture is not as intricate as it may seem on first thought. What is desired is a law having as its fundamental principle the protection of all Horticultural and Agricultural plants and their products from the ravages of all insect pests, fungus and bacterial diseases injurious to such plants and their products.

The principle can be applied just as easily to the orange growing industry of California as it can to the apple industry of the Northwest, so that you see it is not so hard to construct a law in its basic principles that will cover the entire subject under discussion, and be applicable to each section of the country.

I think it may be well to make a little explanation,—for the two speakers who proceeded me have used my name in connection with this work, and without further explanation you might get the impression that the Nurserymen had formulated a bill that they were trying to get passed in the different states.

I appreciate, very much, the kindly words that both Dr. Cook and Mr. Roberts have expressed in connection with the work I have done for the Uniform Horticultural Bill; but while it is true that the Nurserymen have been leaders in this work, the Uniform Bill which has just been

passed upon by the Conference Convention at Corvallis this week,—a copy of which I have just received and which I beg leave to lay before your association for your consideration, was not formulated by the Nurserymen. As nurserymen, we have no horticultural bill; we do want the best bill that can be framed by the best minds in the country, then we will try and have this Uniform Bill adopted by the different states.

What the Nurserymen have done in connection with this work was to gather together all of the different laws of the different states from which has been formulated the present Uniform Bill, and I may say, that the foundation of this bill is the bill that was originated by the Committee of Eighteen appointed by this Association two years ago, so you see it is not a Nurserymens' bill at all.

Upon that foundation we have built the present bill. In the study and investigation, information of value has been gathered from the laws of the different states. Whenever some principle was discovered that was thought would add protection to the Horticultural interests of the country, this was incorporated. That is about the situation so far as the Nurserymen are concerned.

Now I am sure you will all agree that when we have formulated a Horticultural bill that will give ample protection to all of the Horticultural and Agricultural plants and their products from injurious insect pests, fungus and bacterial diseases, that it will be a good bill to have passed in its identical form in each of the several states.

The Conference Convention which has just lately met in Corvallis kept the principle of a uniform law in mind all the time, so that one state could operate the law under a commissioner; another state under a board and yet another under a deputy commissioner of Agriculture.

One principle that has been agreed upon is that we should have a higher standard of inspection. "If you will," a fixed standard of inspection, we want the inspector who passes on your products and mine to be a man who has passed some form of examination,—the higher this standard the better, thus placing the inspectors on a higher plane than they have been heretofore. Of course, the form of examination for inspectors may vary in different states on account of the different pests and diseases to be combatted, and yet, the standard remains the same.

The insects and diseases to be kept in check or eradicated, may be different in different states. This simply emphasizes the importance of delegating to your Commissioner or Board, as the case may be, a good deal of authority,—putting this power under bonds, so that responsibility may be fixed.

Quarantine is another very serious question, and we believe that the state should be the unit and not the county. Should the idea of county rule continue to increase, it will soon be hard to ship any horticultural products from one county to another, let alone between one state and another.

One other feature that has been added in the uniform bill, as drafted, is the inspection of nursery stock at initial point of shipment. We think this feature very important, especially with such a perishable product as nursery stock. Under our present arrangement, nursery stock may be inspected several times; often under adverse climatic conditions, sometimes exposed to hot sun or drying winds, which is always injurious.

In think this matter has been gone over so thoroughly, especially by the speakers that have proceeded me that I should not take up any more of your time, especially in view of the lunch that has been announced for this hour.

In conclusion I may say that the proposed bill which has been placed before you for your consideration, is practically the same as the bill which your committee of eighteen formulated two years ago with such corrections as were deemed best by the different committees through whose hands it has passed. All of the various committees having endorsed the principle of Uniformity, may I hope and trust that this convention will consider this bill carefully, and if there are any defects found or suggestions that you have to make that will better protect the horticultural interests of the country, you will give us the benefit of your council.

I trust you will seriously consider this draft of the Uniform bill adopted by the Conference Convention and give it your endorsement.

I thank you.

Mr. Minton: As it is getting late and it is practically impossible to discuss this law in such a short length of time I would move that a committee be appointed from this body—if you will allow me to suggest Mr. Beckwith, Mr. Allen, Mr. Thomas be appointed to confer with the committee who drafted this law, and suggest any change they may deem proper and report back to this body at a later meeting.

Dr. Cook: I want to say to you that this is a very important matter and I hope you so regard it. It will be very desirable to have this bill gone over thoroughly. I sincerely hope that you will appoint this committee to go over the bill. I don't know the gentlemen, but I hope they are men of ability and are so well known to you that when they present their recommendations that you will unanimously recommend this to this convention. I sincerely hope this committee will be appointed and you will have the confidence in them and recommend this bill to the legislature. It will be the best thing for all.

Mr. Bateman: I would like to add Dr. Henderson's name to that committee. We have peculiar conditions here and we need good representation on this committee and I would like to see Dr. Henderson's name added.

A motion was made, seconded and carried that Dr. Henderson's name be added to the list—that the committee consist of Messrs. Beckwith, Allen, Thomas and Henderson.

Upon motion duly made, seconded and carried a recess was taken until 1 P. M.

THURSDAY AFTERNOON, DECEMBER 3.

Meeting called to order at 1:25.

Col. Washburn: After remarks by Prof. Gardner on pruning, the trip by automobile will be taken through the valley to such points that will give a good view of the valley, and on our return there will be a practical pruning demonstration at Gottleib's orchard.

On motion duly made, seconded and carried, Mr. H. E. Gale and W. C. Leever were appointed on the committee with Messrs. Beckwith, Allen, Thomas and Dr. Henderson to look over the horticultural bill.

Mr. Roberts: It has certainly been a great treat to be associated with Dr. Cook the past week; it has been a great pleasure to hear him this morning. We appreciate the address he has given us and I move that this convention express its appreciation in a vote of thanks to the doctor expressed by a rising vote. (Applause and all stand.)

Dr. Cook: I want to thank you very much—the pleasure has all been mine and I have considered it a continuous treat. Three men have told me that they were coming down to San Francisco and would be at the Leland University at our meeting. We want you all to come—we want to get every man at that great meeting—and don't pass by Sacramento, but come in and see us.

Prof. V. R. Gardner, Associate Professor Division Horticulture, O. A. C., then read a paper on "Pruning."

HOW SOME CURRENT PRUNING PRACTICES DEFEAT THE REAL OBJECT OF PRUNING.

V. R. Gardner, Professor Pomology, O. A. C.

Introduction.

If you ask the average fruit grower why he is in the orchard business, he may give you any one of a number of answers, depending upon how he interprets your question. He may tell you he is growing fruit as a side line, as an avocation; it may be that his health demands that he do outdoor work; possibly he was brought up on a fruit farm and thus came more or less naturally into the business. However, regardless of how they got started, most fruit growers are in the business primarily for what it will yield in the way of financial returns. The orchard may be a means of affording pleasure to the owner, indeed it should be, but it must be a means of affording him a living. We maintain the orchard not primarily for its looks, for the addition it makes to the landscape, but for what it can do. Our primary object is to take from it year after year the largest possible quantities of fruit of the best possible grades and at the lowest practicable costs. It is because of this that we cultivate, fertilize,, thin, spray, prune and otherwise care for the trees. This being true, the value of any particular orchard operation or practice can be—and should be—measured by the way in which it influences yield, grades, and cost of production.

The Object of Pruning.

If then we ask the question "why do we prune?" our answer is that fundamentally we prune to get more fruit and better fruit, to increase quantity and quality, or to lower its cost per box. At this

point it may be objected by some that we also prune to secure a certain shaped tree. That, however, is a matter of training; and pruning, and should not be confused with training. Training has to do with the shaping of trees, with making them assume one form or another. We train trees with open or closed centers; with round, spreading or flat tops; with many or few scaffold limbs; with high or low heads. Here it should be emphasized that training does not have to do directly with the functioning, with the behavior, of the tree. This is of course far from saying that training is not important. A tree trained with an open center may be much better adapted to a certain soil, a certain slope and a certain amount of humidity than a close-centered tree of the same variety. The reverse may be true of the same variety under an entirely different set of conditions. But whether in training we secure a good shape or a poor one for a certain variety under our conditions, training has to do primarily with form. On the other hand, we prune trees to so modify, to so control, their fruiting habits that larger and more regular crops of better fruit will be borne. In other words, we prune to modify function.

The Machinery for Fruit Production.

Broadly speaking we can control the fruiting habit of fruit trees only in so far as we can control their machinery for fruit production. The flower is usually regarded as the mechanism that the plant constructs for the ultimate purpose of fruit and seed formation, but flower formation depends to a very large extent upon the number of flower spurs, or as we call them, fruit spurs, present and upon their behavior. This is practically the equivalent of saying that the fruit spur is the real machine that the tree builds and through the operation of which its fruit is manufactured. Possibly exception may be taken to this in the case of bearing on one year old wood, but this rather extraordinary habit of some varieties (it is understood this discussion pertains only to apples and pears) is not general enough to seriously conflict with the statements made. At any rate the fruit spur is the mechanism that the tree usually employs in its work of fruit bearing. Without doubt many factors influence the initial development and the later health and vigor and regularity of functioning of fruit spurs. Indeed, there are good reasons to believe that most of our orchard practices, such as cultivation, fertilization, spraying, the use of cover crops, etc., influence them either directly or indirectly—perhaps mainly indirectly. Pruning, however, has generally been looked upon as a practice, almost as the practice, through which we directly influence fruit spurs. All fruit growers know that they can prune them out and thus reduce their number. Many believe that by this or that pruning practice they can stimulate their formation or possibly increase their vigor or lengthen or shorten their life, etc.; and these beliefs are founded upon careful observation and experience. To just what extent the existence, the vigor, the health, the length of life and the regularity of bearing of individual fruit spurs are influenced by definite pruning practices, such as heading-in, thinning out, summer pinching, etc., is far from being generally understood. In other words, we realize that pruning influences the fruit spur system of the tree, the fruit producing machinery of the tree, but we don't realize how it influences it nor to what degree.

The Ideal Fruit Spur System.

At this point it will be well to consider what we really desire in the way of fruit spurs on our trees. Looking at the question from the

viewpoint of their fruit spurs, when are our trees in the best condition? Do we want the spurs to be many or few in number? Large or small? long lived or short lived? should we aim to have each bear a fruit every year or every two years or every four, eight or ten years? These may seem superfluous questions but investigation will show that they are not. The trees in some orchards are full of fruit spurs, those of other orchards have relatively a much smaller number. The individual fruit spurs in some orchards average an apple or a pear once every two or three years; those in other orchards average a fruit only once in four or five or six or eight or even ten years. The average length of life of the fruit spur in some trees may be three or four years; in others 30 or 40 years. These are extremes, of course, but they represent facts regarding the fruit manufacturing machinery in our orchards. Sure all of these conditions cannot be equally satisfactory. There must be some of these extremes that are distinctly undesirable. Possibly no extreme is desirable.

What are the correct answers to the questions that have been asked? If the fruit spur system of the tree is its mechanism for fruit production then is it not reasonable that we should prune (1) to obtain as large a number of fruit spurs as possible; for, within certain limits to be mentioned later, the larger the number of fruit manufacturing machines the larger will be their total output. And is it not also reasonable that we should prune (2) to keep the fruit spurs that we once secure in as thrifty, vigorous and healthy condition as possible; for the better condition a machine is in the better is the product that it will turn out.

Pruning that Limits Fruit Spur Formation.

Now let us ask what are the pruning practices that stimulate and encourage the formation of the largest possible number of fruit spurs; and what are the pruning methods and practices that either directly or indirectly limit fruit spur formation.

First, it may be mentioned that not a few fruit growers deliberately remove fruit spurs from the scaffold limbs of their trees. Of course many orchardists would never permit such pruning in their orchards, but it is far from uncommon. The writer well remembers visiting one orchard of over 5,000 large bearing trees where the new manager was having this done. The idea evidently was that the trees "look better" when they have perfectly smooth limbs, their surface unbroken and unmarred by irregular jagged spurs. Little thought was given to the fact that immediate and future yields were being reduced, that indeed the part of the tree best able to bear heavily was probably being rendered permanently barren.

How many people pruning trees between the ages of two and five years prune with their future bearing habit and bearing surfaces in mind? Probably very few. Too many are inclined to think that at that age they are pruning simply to secure vigorous wood growth and proper shape. At that stage of tree growth these questions should be dominant, but that does not mean that future bearing habit should be entirely lost sight of. Especially is this true when pruning trees four, five and six years old. If the branches of young trees are pruned too heavily practically all the buds left are forced into growth. This necessitates severe thinning and severe heading back the following year; and these two processes kept up year after year for three or four seasons mean that but very few buds that can develop into fruit spurs will be left in the lower and central part of the tree. It is probably good practice to prune heavily trees that have been set one, two, three, four,

and occasionally five years. By this heavy pruning wood growth is greatly stimulated and a large vigorous tree with good strong framework can be quickly grown. But when the time comes for the tree to begin to bear the kind of pruning employed should be entirely changed, for an entirely different type of growth is wanted. The energies of the tree are to be turned into another direction, or at least they are to be divided and part of them expended for fruit spur and fruit production. In terms of pruning practice this object is accomplished mainly by comparatively light pruning for at least a couple of years. Yet many orchards that are or have recently reached bearing age, show that the one directing their pruning has figured (if indeed he has thought about this particular question at all) that the same type of pruning that has been giving him excellent vegetative growth will in some way also give him fruit spurs, though other conditions have in no way materially changed. In hardly any other way can the frequent heavy pruning of trees between four and eight or ten years of age be explained. It sometimes seems as though we have a kind of blind faith that our trees will somehow come into bearing without much effort on our part and in spite of almost anything we can do to prevent it. Consequently we give little thought to pruning as it really influences bearing habit.

What has just been said regarding the limitation of the number of fruit spurs by severely pruning young trees applies with equal force to the severe pruning of bearing trees. In general heavy pruning greatly reduces the number of buds that can develop into fruit spurs, if it does not actually remove many, and also forces a large percentage of the buds left into vegetative growth. In extreme cases it forces well formed and properly functioning fruit spurs into leafy, non-fruiting shoots. It thus limits the fruit bearing surface in four distinct ways. This is far from stating that heavy pruning is never desirable; but the fact should be emphasized that heavy pruning greatly reduces the amount of the tree's machinery for fruit production. The question is here raised:—are not many orchards forced into wood growth year after year by the heavy pruning that they receive, when a lighter pruning or in extreme cases no pruning at all would permit the development of much-needed fruit spurs? It should be stated here that by "heavy pruning" is meant just what the term implies, whether the removal of top growth consists in the taking out of a few large limbs or of many smaller ones, whether it consists in the thinning out or the heading back of branches or of both, whether the interior or the exterior of the tree is sacrificed.

It may be that few growers prune heavily as a matter of choice. They possibly think they have to to keep their trees in "good shape," regardless of what this kind of pruning does to the fruit spurs. At any rate, the fact remains that heavy pruning is an exceedingly common orchard practice.

Pruning that Increases the Vigor, Longevity and Regularity of Bearing of Fruit Spurs.

From what has been said it might be inferred that no pruning at all will give us the largest possible number of fruit spurs, as the largest possible number of buds are left to grow into spurs and so many start that few can develop into purely vegetative shoots. Theoretically at least this is probably more or less true. Practically, however, it is undesirable to stimulate, or more accurately, permit fruit spur formation to proceed to that extent. This is because we desire not so much the greatest possible number of fruit spurs in the tree as fruit spurs that are healthy, vigorous and in good condition in every way so that

they will flower and fruit regularly for many years. The health, vigor, and longevity of the fruit spur depend upon its food and moisture supply and upon the amount of sunlight that it receives. It is possible for a tree to be so situated that there is not enough moisture and food present to supply properly all the spurs and their developing fruits. It is also possible for the upper and outer limbs to be so numerous and the growth they make so dense that many of the inner and lower branches with their fruit spurs receive insufficient light to keep them thrifty. Later these shaded spurs die off and the fruiting area of the tree is thereby reduced. Under these circumstances judicious pruning would so limit the number of spurs that there will be food and moisture for all; and the branches would be so thinned that enough sunlight will filter through the outer and upper part of the tree to keep the remaining parts growing vigorously. Just as too severe pruning reduces the number of fruit spurs, too little pruning weakens them, reduces their vitality, shortens their life and makes them function irregularly. The problem of the fruit grower then is to maintain the proper balance between the number of fruit spurs and their health and vigor. He does not desire so many that some of them die out; he does not wish for so many that even though all live, most of them bear very irregularly. On the other hand, he does want as many as the size of the tree and its food and moisture supply can keep alive and healthy and bearing regularly.

The question that we may now raise is how do current pruning practices maintain the life and strength and vigor of fruit spurs? How do they influence their longevity and the regularity with which they bear fruit? How do they maintain the proper balance between number and strength of fruit spurs? Do they allow too many fruit spurs or do they go too far in reducing their number? Do they keep the spurs strong or do they allow many to die? A partial answer has already been given to this question in discussing the subject of heavy pruning. Though possibly a smaller percentage of fruit growers under-prune than over-prune, too little pruning is without question the direct cause of small crops and inferior fruit in many orchards. It is not necessary to visit a large number of orchards in order to find evidence of too light pruning. Dead and dying fruit spurs are very common, especially on older trees. There may be loss of fruit spurs from dense shading in over-pruned trees and there will of course be a certain loss from other perfectly legitimate causes (e. g. occasional injuries incident to picking) in very well cared-for trees, but in general the dying out of many fruit spurs indicates too little pruning. The fact is that an exact balance between number and vigor of fruit spurs, between fruit and wood production in the tree, cannot be maintained. The best we can do is to maintain an approximate balance. The grower often falls far short of maintaining an approximate balance because he does not realize that there is a balance to maintain or does not appreciate its real nature. This is not because he does not spend enough time pruning. He realizes that it is one of the most important of his orchard operations. He perhaps studies the problem more assiduously than he does any other orchard practice. However, he does not approach the problem from the right angle, view it in the right light. He looks upon pruning as a means of obtaining a certain form, of a certain type, and bends the best of his energies toward that end. He uses pruning as a means of modifying form when it should really be a means of modifying function. Consequently he trains his trees instead of pruning them. In training them he may incidentally, or accidentally, prune them, and in the best possible manner, but if so it is more or less a matter of coincidence.

How Much Pruning is Required.

Thus far an attempt has been made only to point out the fundamental objects of all true pruning and to present one or two of the principles underlying pruning operations. Incidentally the inevitable results of too much and of too little pruning have been mentioned. It hardly need be added that the unpruned tree is not necessarily the best pruned tree; the much-pruned tree is not necessarily the best pruned tree; neither extreme is apt to give the best results. In fact the contrary is most apt to be the case. The practical question at once arises, "how much are we to prune?" From the very nature of the question, or rather of the subject with which it deals, no answer can be given which can be taken as a rule to be always followed. It is the principles that have been discussed which underly tree growth and fruit production that determine amount of pruning. Only as these principles are applied to each individual problem as it arises—in other words, to each individual tree—can the right amount of pruning be done. From what has been said, it is evident that proper pruning consists in the removal of just enough wood to afford the largest possible number of fruit spurs a good supply of light and food, and consequently keep them growing vigorously and fruiting regularly. A tendency on the part of the tree to produce water sprouts and other wood growth at the expense of fruit spurs indicates that too heavy pruning has already been done. Irregular bearing and dying out of fruit spurs indicates that too little pruning or pruning in the wrong part of the tree, or both, have been faults of recent years. Lighter pruning in the first instance and heavier pruning in the second instance are the correctives. The person who prunes should glance quickly over the tree, judge quickly and accurately of the balance (or lack of it) that exists between wood and fruit production, between vegetative growth and fruit bearing surface, and then proceed to restore or maintain this balance. In its last analysis the question of amount of pruning becomes a question of judgment. Rules cannot be given, or if given they are almost worse then useless. They mislead as often, or more often, then they lead aright. Principles governing amount can be more or less thoroughly understood and then applied to individual cases. Principles are always the same.

Thinning-out vs. Heading-in.

Pruning is not only a problem of degree, of amount, it is a question of kind as well. That is to say, the fruit grower not only needs to know the principles underlying the amount of pruning to do but of equal importance is the question of how that amount shall be done. Having determined upon the right amount of pruning, shall the grower thin-out or head-back? If he heads-back, shall he head many branches a little, or shall he head-back a few severely? If he thins out, shall he take out a few large limbs, or many smaller ones? These questions cannot be considered entirely apart from the question of the number of fruit spurs that we desire or of their relative strength, or entirely apart from the question of training. Manifestly the thickness and density of growth, which is modified by thinning of one kind or another, bears an important relation to the health and vigor of the fruit spurs, especially those in the lower and central parts of the tree. In general it may be stated that heading intends to thicken the top, while thinning out, as the term indicates, thins it. Thinning, of course ,in addition to reducing the number of actual or potential fruit spurs, lets in sunlight, and thus tends further to keep the remaining ones healthy and vigorous. Heading in on the other hand, while reducing the number of actual and potential fruit spurs much like thinning out, really tends to afford less light to

the spurs on the inner and lower limbs and thus is apt to reduce rather than to increase their vigor and longevity. Though heading-in acts as a stimulus to the development of buds that are left and thus in one way forces lateral growth, thinning also encourages lateral growth through the removal of branches that would otherwise check it. In other words both practices are a stimulus to fruit spur formation, heading in being the greater of the two. Of the two, thinning is probably the greater aid in increasing the vigor, longevity and regularity of bearing of individual fruit spurs. Consequently, if it is a greater number of fruit spurs that we need, thinning and heading in should be combined. If we have enough or too many fruit spurs and wish mainly to increase their vigor, longevity, regularity of bearing and efficiency, thinning is the practice that we should mainly employ. This is again the equivalent of saying that principles and not rules should determine the kind of pruning that we should do. Good judgment is as necessary in deciding between heading in and thinning out as in deciding upon amount of pruning to do.

The Relation of Pruning to Training.

Though this paper does not deal with training, a word is in place regarding the relation of pruning to methods of training. The two subjects are quite independent and this fact should be emphasized. The one has to do with form, the other with function. The grower should not confuse the two. He should realize that there may be much pruning and very little training; and conversely much training and very little pruning.

A tree may be well pruned almost regardless of the way in which it is is trained. To be more specific, the open or the close centered, the high or the low headed, the round or the flat topped, the spreading or the pyramidal tree may be well pruned or it may be poorly pruned. It is not the object of this paper to minimize the importance of training, or to encourage one type of training over another. Good training is desirable; it means much to the fruit grower. At the start he should study carefully the advantages and disadvantages of the different systems of training and use his best judgment in deciding upon which one is the best adapted to his variety or varieties as they grow naturally under his conditions. When the system of training is once settled, let it remain settled, for if the right system has been selected for a certain set of conditions, there will be no reason for changing it. The attention of the grower can then be turned to a study of the few simple principles underlying all pruning and to an application of these principles to the problems that his individual trees present.

V. R. GARDNER.

The meeting then adjourned until 3:30 for the trip by automobile through the valley and a pruning demonstration by Prof. Gardner.

So few of the members of the association returned after this trip that there was no further meeting on Thursday.

FRIDAY MORNING, DECEMBER 4, 1914.

Meeting called to order at 1:15.

Col. Washburn read a telegram from Dr. J. R. Cardwell.

Portland, Ore., Dec. 3.

State Horticultural Society, Medford, Ore.: Greetings received; many thanks; hope to be with you next meeting. Cordially,

J. R. CARDWELL.

It was moved and seconded that the chair appoint a committee on resolutions. Col. Washburn then appointed Mr. Ben Sheldon, Guy M. Conner and C. D. Minton as the committee on resolutions.

Col. Washburn: The chair will take pleasure in introducing Prof. W. L. Powers of Corvallis, who will read a paper on "Principles of Modern Irrigation Practice."

Prof. Powers then read a paper as follows:

PRINCIPLES OF MODERN IRRIGATION PRACTICE.

By W. L. Powers, Assistant Professor of Drainage and Irrigation, Department of Agronomy, O. A. C.

People are coming to require more and better standards of products of the garden, orchard and field and western climates and soil with the moisture supply controlled by irrigation will supply the best quality of produce.

Meaning of Irrigation.

Irrigation is simply the watering of land by artificial means to control soil moisture and enable crops to grow or to increase production. We have more crop shortage from lack of moisture than from any other one factor. On the most intensive truck farms, even in humid states, some supplementary irrigation has been found profitable in dry seasons. The aim of irrigation should be to use the least amount of the latter necessary to maintain a favorable moisture content throughout the main part of the growing season while still permitting the soil to dry out sufficiently to mature the crop. Irrigation should be applied when the soil moisture content drops to near the wilting point and in just sufficient amounts to raise the moisture content to the maximum usable water capacity of the soil throughout the root zone. Proper irrigation supplies a favorable moisture condition and encourages the growth of feeding roots, bacterial activity, and the liberation of plant food. Improper irrigation checks these processes and often causes unfavorable soil temperature and drainage problems, or the leaching of plant food. In strictly arid districts it may even result in failure. Irrigation should be regarded as simply supplementary rainfall and is desirable whenever rain is desirable. Proper irrigation is a good means of soil moisture control.

Advantages of Irrigation.

Farming under irrigation reaches its highest development with intensive farming, where large crops are removed and large amounts of refuse must be used to keep up the usuable water capacity and maintain fertility. Irrigation makes possible a greater diversity of production. It means crop surety, closer neighbors, more shade, water for live stock and generally less dust. It compels closer co-operation.

Selection of Land for Irrigation.

The main points to consider in judging the value of irrigation are

the depth of soil which should be uniform to several feet, native vegetation if any, climatic conditions as the amount and distribution of rainfall and the dates of first and last killing frosts. Also the agricultural experience, kind and yield of crops that have been grown in the district with and without irrigation. The depth of the soil should be determined by the use of a posthole auger or soil auger. Any gravelly strata or hardpan will be revealed by such an examination. Gravel does not retain much soil moisture in usable form and does not permit the movement of moisture back to the crop roots below. Hardpan or other impervious layers in the soil interrupt the downward movement and storage of irrigation water in the soil. The working properties of the soil may be determined with the fingers. The percentage of sand, clay and organic matter can be estimated by putting a sample in a tumbler partly filled with water. The coarse material will form the first layer in the bottom, and the organic material will partly float on the surface. The ideal soil for irrigation is a deep, fine, sandy silt loam with a good proportion of organic matter. Soils that are too sievelike, on the one hand, or too sticky in the other extreme are not as suitable for irrigation purposes.

Usable Water Capacity.

It is important for soils which are to be irrigated to have the greatest possible usable moisture capacity. The range of usable soil moisture capacity under field conditions is from near the wilting point or drought point on the one hand to the excess point on the other hand. The excess point is the point beyond which the soil is too wet for cultivation and mulching and beyond which it will not retain usable moisture for more than a few hours. Only the heaviest clay loam soils will store as much as two acre inches per acre foot of usable soil moisture. The sandy silt loam soils and sandy loams will retain from one and one-fourth to one and one-half inches of usable water per acre foot and the sandy soils from one-half to one inch of usable water per acre foot. The greater the soil reservoir the less often we need to fill it and at less expense.

Soil Moisture Control.

To secure the most permanently profitable results in irrigation farming, one should aim to get the highest possible efficiency out of every inch of rainfall and then every supplementary inch of irrigation employed. It is possible with irrigation farming to build up and keep up the usable water capacity of the soil at a higher state than is possible without irrigation farming. The water capacity can be increased in two ways, first, by tillage treatment, which will tend to loosen up the soil and change the arrangement of soil particles, causing a more crumby structure and a greater percentage of empty space, and, second, by the addition of organic matter which is spongy and which has a mellowing effect on the soil. With irrigation farming, it is possible to plow deeper and to use larger amounts of manure than can be the case in other kinds of farming, without danger of excess looseness and drying out of the soil. The water capacity should be kept up so that the soil will hold the greatest possible amount of rainfall and irrigation water received.

After the soil is stored full of usable moisture, the next important step in moisture control is to check the losses of this water and conserve it until it can be used by the growing crops. Usable soil moisture is subject to loss by percolation, by evaporation from the soil surface, and by transpiration, that is, the passage through the plants and out through the pores of the leaves.

Percolation can be largely controlled in irrigation farming by applying only moderate amounts of irrigation and by using a small enough

head in proportion to the plot irrigated, so that the moisture will have time to be absorbed by the soil and run-off at the lower end of the plat can be avoided.

The use of the furrow method of distributing water and of growing wind breaks will check the evaporation losses, but the greatest practicable means of controlling evaporation from the soil surface is by use of the soil mulch. To be most effective on the average soil, this mulch should be provided just as soon as the soil is dry enough to crumble. It should contain a good proportion of crumbs from the size of the pea to the size of a hickorynut and should be kept dry throughout its entire depth by frequent cultivation. This cultivation should be made with a tool that will invert the soil somewhat to hasten drying and should leave the soil surface fairly level. The most economical depth of mulch in proportion to the moisture saved has been found by elaborate experiments to be from two and one-half to three inches, though where water is very valuable a greater depth of mulch is justified.

The loss of water from transpiration is enormous. It has been regarded as beyond control by the farmer, but transpiration experiments show that the best methods of farming result in more efficient use of water and decreased water cost. In careful experiments conducted in the field and carried over a period of years at Corvallis, light frequent irrigation has given an increased efficiency for the total usable water at hand for crop use. Less water has been needed to satisfy the transpiration requirements where applied just at the right time and when applied to a perfect stand and to the best crop and best crop varieties. A greater efficiency can be secured where water is applied in known amounts and at proper intervals. Wherever less energy is required by the plant to get its nourishment, due to good tilth, thorough cultivation, good state of fertility or with crops grown in rotation, the water consumption is less. The saving by applying these principles is from one-quarter to one-half the total water used. This will be further illustrated later.

Importance of Water Measurement.

The irrigator should have a working knowledge of the measurement of water in order to provide the right capacity of pump or proper sized lateral for the acreage in question. He should learn how much water is used by each field and crop in order to determine the water requirements of different crops and the most economical use of water. The water is often worth several times as much as the land to which it is applied and the irrigator should measure the water. The data thus gathered would be valuable in making an equitable allotment of the water in any community. If every irrigator would install a measuring device in his head ditch and learn to measure the water accurately so he could tell when he was getting the amount of water due him, there would be less contention in irrigated districts.

Factors Affecting the Duty of Water.

The amount of water required to irrigate a given crop to maturity depends on the soil and subsoil conditions, the kind and variety of crops, and the amount and distribution of rainfall, as well as other weather conditions. Less water is required where applied with the furrow method and in deep furrows and where the stand of the particular crop grown is perfect in proportion to the fertility of the land. The kind of cultivation and the kind of ditches used, whether broad or deep affect the total amount of water required. Another important factor is the skill of the irrigator and the method of purchase and use of the water. Less water

is used where it is pumped or where the irrigator pays in proportion to the quantity used and where rotation is practiced in the use of the water.

The above factors have been commonly recognized as affecting duty of water for years. Recently, we have come to realize the importance of crop rotation, and the use of manure to maintain the fertility and keep up the water capacity of the soil so that the plants will not need to drink as much water in securing the needed food and liquid nourishment. For example, on the College Demonstration Farm near Redmond, in 1912, an acre planted to potatoes receive six acre inches of irrigation. One-half of this land was treated with potassium sulphate at the rate of one pound per square rod or at a cost of about four dollars per acre. The unfertilized plat yielded 147 bushels or 24½ bushels per acre inch. The fertilized plat yielded 235 bushels per acre or 39 1-10 bushels per acre inch. In all cases where fertilizer was used on this farm it resulted in decidedly more economical returns per acre inch of water used.

Speaking of duty of water for orchards in Washington state, Mr. S. O. Jayne, of the Office of Experiment Stations, says:

"The water on a 20-acre apple orchard at Wenatchee was measured showing that a depth of 23 inches was applied. The trees were seven years old and bore a heavy crop that year and also the two following years. The orchard was one of the best cared for as well as one of the best producers of the Wenatchee district. The irrigation was done with more than ordinary care and intelligence. But the soil texture is rather coarse and the water holding capacity low, thus favorable to large percolation losses in the subsoil. A considerable saving of water would have been possible had the furrows used been 330 feet long instead of twice that length.

"Another Wenatchee orchard of 50 acres used 16 inches in 1908 and 17.5 inches in 1910. The soil here was somewhat heavier than in the former case, but the furrows were long and the run-off considerable. The orchard was not so uniformly good as the other example cited. Annual rainfall in the district is about eight inches."

Measurements in twelve orchards in the Wenatchee, Spokane, Boise and Bitterroot Valleys by the Office of Experiment Stations show that from 1.2 to 2.2 acre feet per acre were used and the average depth used was about 19½ inches. Widtsoe regards five inches depth per month or from 12-24 inches per season a reasonable use of water on orchards.

From experiments conducted mainly by our Horticultural Department in the Rogue River Valley, it was learned that (1) some of the heavy clay soils gave best results with good cultivation and little or no water; (2) soils of medium to slightly heavy texture were usually benefited by four inches depth of irrigation divided equally between two irrigations, the first early in July and the second in the middle of August; (3) free working soils properly cultivated responded best to five inches depth divided between two irrigations, the first early in July and the second earl yin August; (4) best results were obtained on pumicous soils by the use of 6 to 8 inches, distributed through three irrigations, one each in June, July and early August.

The time, amount and frequency of irrigation all effect the duty of water. These constitute the largest practical problems of irrigation practice and deserve special consideration.

The Amount of Irrigation.

Generally it will not pay to irrigate up to the point where the maximum yield is secured, but rather we should stop short of that where the cost of extra irrigation makes so slight an increase in the yield as to not pay for the cost of the extra irrigation. Where water is at all valuable,

the best amount of water to use is the amount that will give the most economical yield. Generally, the amount to use per irrigation will be the amount that will give the most economical yield. The amount to use per irrigation will depend upon the capacity of the soil and subsoil to store water, the depth of the roots, stratum plus the capillary power of the soil, or the total soil strata through which the crops can draw moisture. The amount that can be applied without excess will be the difference between the total usable capacity and the amount of usable water already present and it will depend upon the extent to which the soil is dried out.

Frequency of Irrigation.

The frequency of irrigation also depends on the water capacity of the soil. Sandier soils hold less usable water and the soil reservoir must be filled more frequently. The frequency of irrigation also depends on the rate of loss through the crops and through the soil. When a heavy crop is on the land or there is hot, drying weather, the soil moisture must be closely watched. Some crops will also tolerate more water than will other crops and with these the soil can be watered more heavily without injury to the crops. The proper amount and frequency of irrigation varies greatly from season to season. Experiments have been carried on seven years by the Agricultural Department at Oregon Experiment Station with nine crops. The relation of the amount of water to the most economical yield and the maximum yield of potatoes is shown for illustration in the following figures:

The maximum amount for a wet season, which was 342 bushels (1913), was secured with two inches of water, while in a dry season (1911) it was obtained with six inches of water. The most economical return with potatoes has been secured with two inches in a wet season and with three or four inches in a dry season.

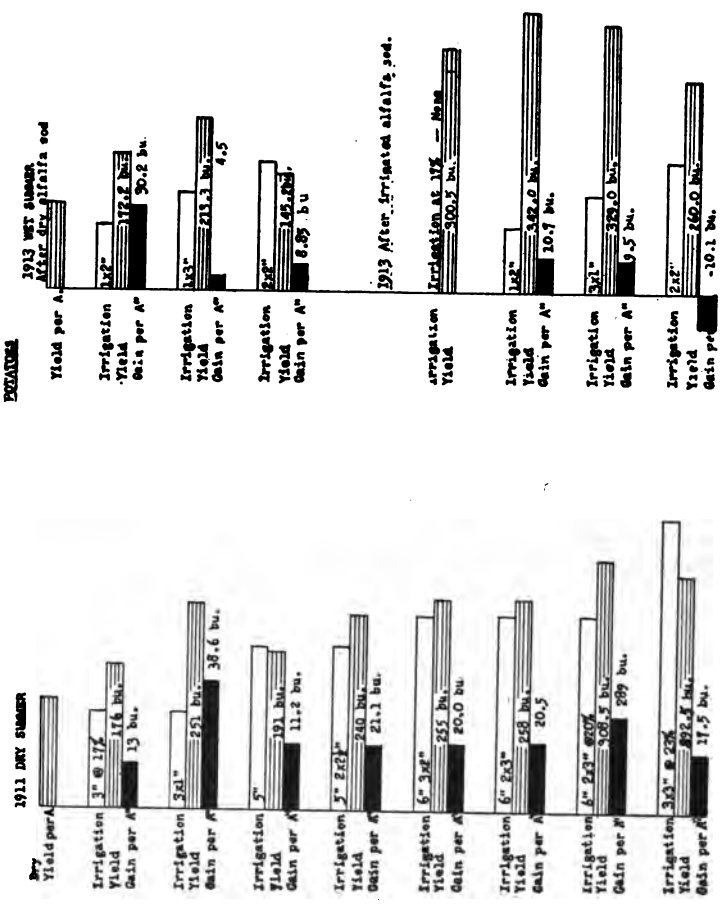
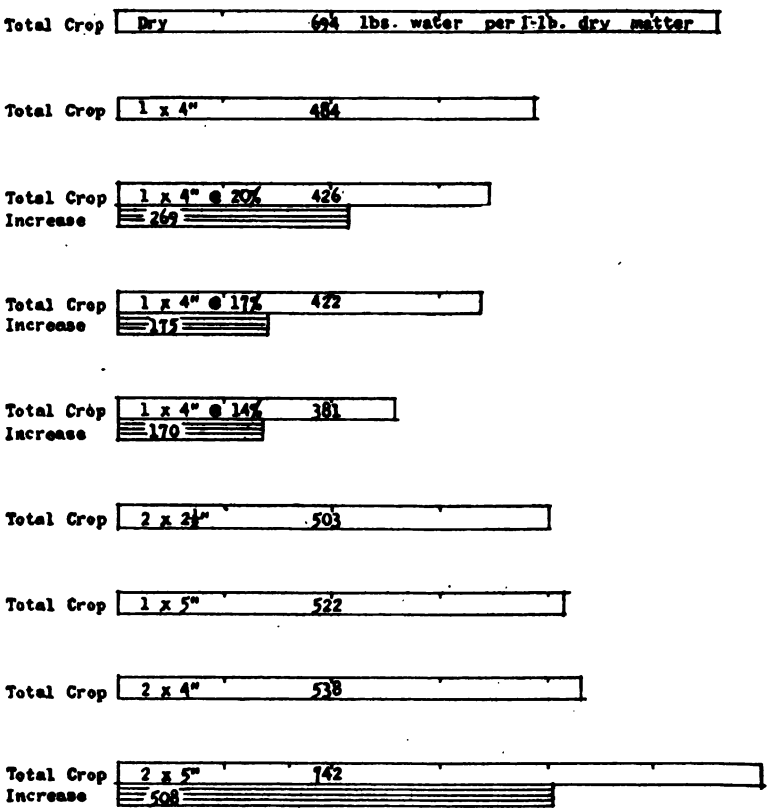


Figure 11 MOST ECONOMICAL AND MAXIMUM YIELD PER A" FROM IRRIGATION

RELATION OF AMOUNT OF IRRIGATION TO WATER COST OF DRY MATTER
CLOVER -- FOUR YEAR AVERAGE



As a four-year average nearly twice as much water has been required in the case of clover for the dry plat and over twice as much required for the eight-inch plat as was required in the case of the four-inch plat. The water consumption increased rapidly above eight inches of irrigation and below four inches of irrigation. Less economical production of dry matter can be expected with any plant above or below the best amount of water for the particular plant and soil under consideration.

When irrigated legumes have been used in rotation it has resulted in more economical production of dry matter. This is illustrated in the following table:

Effect on Water Consumption of Irrigated Legumes in Rotation—Potatoes, 1913.

	Increase per A. bushels.	Total Water.	Yield per A. bushels.	Ratio, total crop water to dry mat.
Dry after dry alfalfa.....	....	10.18	110	1139
Dry after irriga. alfalfa...	....	13.60	300	629
1x2 in. after dry alfalfa....	28.5	11.72	172	783
1x2 in. after irriga. alfalfa.	10.4	15.69	342	655
1x3 in. after dry alfalfa....	35.2	41.56	213	806
1x3 in. after irriga. alfalfa.	9.7	15.86	329	683
2x2 in. after dry alfalfa....	10.1	14.00	145	1101
2x2 in. after irriga. alfalfa.	8.9	17.42	260	973

With unirrigated potatoes after irrigated alfalfa the water used was 629 pounds for each pound of dry matter, while unirrigated potatoes after unirrigated alfalfa gave a water consumption of 1139 pounds per each pound of dry matter. With the different amounts of irrigation this same relation was found to occur. The lowest water consumption of the total product being secured following irrigated alfalfa in rotation. This shows the benefit of soil building crops in connection with irrigation and emphasizes the importance of green manuring crops and crop rotations to the irrigation farmer. It is probable that the water requirement may be decreased one-third where green manuring crops and barnyard manure are used on the land.

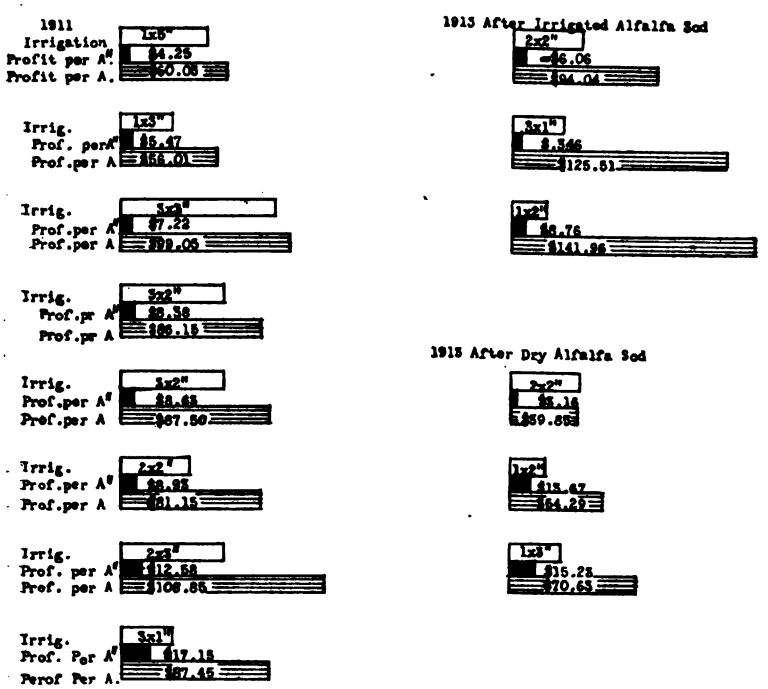
The kind of crops and the variety of crop has had an important effect upon the consumption of water per pound of dry matter under field conditions.

The Most Profitable Irrigation.

The net profit on the increase per acre inch over the total annual cost of irrigation in dollars gives the most absolute basis at hand for judging the most economical use of irrigation. The net profit in dollars on the increase for each acre inch and for total crop for the potato plats above referred to is shown in the accompanying figures:

NET PROFIT ON INCREASE DUE TO IRRIGATION AND ON TOTAL CROP

POTATOES



Potatoes being a money crop, has given relatively large returns per acre inch of water used. The most economical yield was secured with two or three inches of water in wet season or with five or six inches of water in dry season. The best returns have been secured when this water was applied in two or three applications so as to maintain a uniform moisture content and keep the plants growing at a uniform rate. Very economical returns have been secured by applying the water when the moisture content dropped to the 20 per cent point in the first foot. The most profitable increase in a dry year was secured from the use of three one-inch irrigations, although the greatest total profit was secured from the use of two three-inch irrigations applied when the moisture content dropped to the 20 per cent point. The most profitable increase in a dry year was secured from the use of one three-inch irrigation on dry alfalfa sod and from the use of one two-inch irrigation applied when the moisture content dropped to the 20 per cent point on the irrigated alfalfa sod land. The 20 per cent plat receiving one two-inch irrigation gave the greatest net profit for the whole crop of any plat represented in the year 1913. The 23 per cent plat was overirrigated and this decreased the yield and total net profit in dollars and cents.

Effects of Irrigation Upon Soil.

With several years of irrigation the soil has shown a slight tendency to decrease in water capacity and increase in volume weight, where rank feeding crops were grown, but to be improved in this respect where soil building crops were grown in rotation. Irrigation has had little appreciable effect on soil acidity and little effect on the content of available plant food. It has caused a decided increase in the organic matter content where irrigated legumes, compared to unirrigated legumes, were grown. The average increase where irrigated legumes have been grown has amounted to about one-half per cent organic matter.

The soil temperature has been lowered somewhat by irrigation water and irrigation has had more influence upon soil temperature than has the shading by trees. Irrigation of potato ground at Redmond in 1912 prevented the temperature dropping below the freezing point and avoided frost injury while neighboring fields were frosted. However, a wet soil is a cold soil, partly due to evaporation from the soil surface, and a cold soil does not afford best conditions for growth.

Effects of Irrigation on Crops.

To determine the effect of irrigation on palatability samples of irrigated and unirrigated potatoes were delivered to fourteen householders in 1911, with the understanding that they should be cooked in the same manner and any possible difference in eating quality noted. The parties eating these were not informed as to the difference in the mode of production until after their reports were made. Four favored the irrigated product, five the unirrigated and five were unable to detect any difference. From these replies it appears that the palatability of potatoes due to a moderate amount of irrigation is slight indeed.

Chemical analyses of potatoes from the unirrigated plat in 1911 indicated that irrigation causes a slight increase in the water content and a corresponding decrease in starch, protein and other constituents except fat. Irrigated hops analyzed by our station chemist contained a lower per cent of objectionable hard resin than did the irrigated potatoes. The effect of irrigation on the moisture content has been studied for years. This effect is illustrated in the following table:

Effect of Different Amounts of Irrigation on Moisture Content of Product.

Crop—	Irrigations.	% Moisture in Product.
1911.		
Potatoes	Dry	$80.00
Potatoes	2x2½ in.	80.84
Potatoes	1x5 in.	80.00
Potatoes	3x1 in.	79.15
Potatoes	2x3 in.	82.80
Potatoes	3x2 in.	81.57
Potatoes	1x3 in.	81.05
Potatoes	2x3 in.	78.84
Potatoes	3x3 in.	82.66
1912.		
Potato vines	Dry	77.9
Potato vines	3x1 in.	79.9
Potato vines	2x2½ in.	80.2

Effect of Irrigation on Per Cent of Cull Potatoes.

1911.	Per Cent Culls.
17%—Dry	15.0
1x3 in.	15.0
3x1 in.	17.9
3x2 in.	13.4
2x3 in.	12.2
1x5 in.	11.9
23%—3x3 in.	11.2
2x2½ in.	10.8
20%—2x3 in.	7.1

From these determinations it appears that the moisture content is not appreciably increased by irrigation except where more than the most economical amount of water is applied.

During several seasons the potato crop has been sorted to determine the percentage of culls in each plat. The results of these determinations for 1911 are given also in the table. It will be noticed that the percentage of small potatoes and cull potatoes decreases with the amount of irrigation up to the most economical amount of irrigation. It seems to remain about constant or to decrease a little with the heavier irrigations. With proper irrigation there is more control over second growth than without irrigation.

Irrigation of potatoes above the most economical amount seems to have caused an increase in the proportion of dry matter in the tops as compared to the tubers. Where there is any irrigation water left in the soil at harvest time the vines are likely to be larger, later in drying and to make larger growth. Irrigation of beets causes a greater root development without as much increase in the leaves. In the case of beans irrigation results in a greater increase of pods than of tops and the proportion of marketability of the products is increased by irrigation, in the beans as it is in the beets. Irrigation of corn has increased the yield of corn stover more than it has in the percentage of ears or has caused a greater proportion of stalks than ears.

Irrigation resulted in higher germinating power and the more perfect development of corn, but resulted in a less matured condition and a slightly lowered germinating power of beans. Up to the most economical amount of irrigation the irrigated potatoes have been as good for seed purposes as have the unirrigated potatoes.

Irrigation usually causes larger sized plants. Kale plants become large and succulent with irrigation and the leaves become more thick and smooth. There are fewer curly leaves on the kale plants where they are irrigated. Usually also the leaves are of a healthy green appearance. Over-irrigation causes development of the plant instead of the fruit and prevents proper maturing of the fruit. Potatoes and pumpkins are inclined to make more vine growth with irrigation.

The horticulturist at the college has found that irrigation causes larger sized fruit, less windfalls, brighter color and later maturity, elongated specimens of fruit and more fruit buds. They have found that the trees made longer and stronger wood growth and bore heavier foliage where irrigated.

Over-irrigation.

Over-irrigation is probably the greatest menace to irrigation agriculture. The danger of over-irrigation on sandier soils is that it will leach out the valuable available plant foods, while on the heavy soils it results in water logging and accumulation of alkali. Water logging causes rotting off of plant roots where they have developed in the deeper soil strata or prevents deep rooting if the roots have not already formed. A shallow rooting plant is not resistant to drought, where as the main to develop in any arid plant is a deep rooting system that is to drought resistant. With over-irrigation the crop yields are lower for each unit of water used. More plant food is taken up by the plants for each pound of dry matter produced. The quality of the crops is greatly reduced and there is a higher proportion of plants in proportion to fruit or grain produced. Extension of the irrigated area is also hindered and other dry land is cheated of its irrigation water. A permanent system of irrigation agriculture depends on the economical use of irrigation water. If we can save 50 per cent of the water now used, it will mean that we can practically double the irrigable area in the West.

A Scientific System of Irrigation Farming.

From observations made in the field and in the laboratory, it appears that proper irrigation will provide a more favorable moisture content and will aid in the liberation of plant food and in its solution conveyance to the plant. It will also increase the bacterial activity in soil as well as the root and top development of the plant. This extra root development will tend to offset any running together of the soil due to irrigation. Wise irrigation will insure larger yields without injury to the quality of the produce. With irrigation farming the crops removed are larger and as a result larger amounts of fertilizer must be returned to the land in refuse. It is more important in irrigation farming than in other methods to practice a careful rotation of crops that will permit the growing of clover, or some other soil building crop on the land every few years and that will also permit plowing up the land deeply at frequent intervals so as to maintain a good state of tilth. This system of humus building should also permit the growing of a good proportion of cultivated crops each year and such crops will require less water. Use of cover crops and other soil building crops, together with the application of manure, maintains the water holding capacity and fertility and lowers the water cost of dry matter. Larger amounts of manure can be used

without making the soil too open where irrigation is practiced. By the use of rotations, including legumes, and the use of manure a free working soil can be be built up and kept up in a higher state of productivity with the aid of proper irrigation. Irrigation farming reaches its highest development in connection with intensive farming. It will become of increasing importance in Oregon on most of the free-working soils in connection with intensive agriculture. It is believed that the fundamental principles herein elaborated are of general application in irrigation practice whether in garden, orchard or field.

Col. Washburn: Has the station made any experiments on the keeping qualities of irrigated and non-irrigated apples?

Hillcrest and other orchards have made these experiments and the results will be found in Station Bulletin No. 113.

The questions and answers on this subject are covered almost entirely by the paper read by Prof. Powers.

Col. Washburn: If there are no further questions on the matter of irrigation we will hear from Mr. Hetzel, Director of Extension Division of the Agricultural College, who will speak to us on the work of the Extension Department.

COLLEGE EXTENSION SERVICE.

R. D. Hetzel, Director Extension Division, O. A. C.

A new conception of the functions of the institution of higher education has developed within the past few years, and has resulted in the organization of a new line of educational endeavor which is generally known as the extension service. This is particularly true of the state-supported institutions, and probably especially true of the land grant colleges. This new activity on the part of our universities and colleges is due, primarily, to the constantly increasing pressure on the part of the people of the country for more widespread and positive returns from these institutions. For several years there has been a pretty general feeling that our educational institutions ought to minister, in some degree at least, to the educational needs of the people of the state who are unable, for various reasons, to enroll for the resident instructional work. Progressive educators have felt this demand and are now making a definite response through the operations of the extension organizations.

The extension service of the Oregon Agricultural College is the outgrowth of a growing demand for this broader service. The activities of the institution are divided into three main divisions: (1) Resident instruction, including all instructional work carried on on the college campus; (2) investigational work, which is organized and conducted under an organization known as the Experiment Station; and (3) the Extension Service, which includes all instructional work carried on beyond the campus boundaries. It may be difficult for the layman to comprehend this distinction in the function of the college, but the organization is such as to draw the line very clearly and to provide for effective administration of the three lines of college work.

While the extension organization, as such, is not more than two years old, certain lines of work now organized as part of the extension service, have been carried on for a number of years. The most prominent of these activities has been what is known as the Farmers' Institute work. This service dates back to the time when the Agricultural College was established, and has been carried on with increasing effectiveness from that time to the present. The demonstration trains were used upon occasions, and several itinerant schools were conducted prior to the time

that the extension service was organized as a separate division of the college work. This work necessarily had to be conducted as an incidental part of the work of the experiment station and the resident instructional work, and for this reason was never developed to a point of highest efficiency.

The Oregon Legislature authorized the organization of the extension service in 1913 and provided appropriations for the proper conduct of the work. The law authorized the college to carry on general extension work and also made it possible for the various counties to maintain county agriculturists under the direction of the college extension organization. Acting under this law, the extension work has been organized and carried forward so actively that during the past year and a half extension engagements have been filled in 230 towns and rural districts of the state, at which there has been a recorded attendance of 140,543 people. It is safe to say that as many more people were reached by means of educational exhibits, Chautauqua lectures and demonstrations conducted in connection with judging at county and school fairs and through personal visits to the farms of the state.

The Federal Government is lending encouragement and assistance to this work, both through the provisions of the Smith-Lever law and through the co-operation of the United States Department of Agriculture. During the past Summer an agreement was reached between the Oregon Agricultural College and the United States Department of Agriculture whereby the Department of Agriculture has placed all of the Federal extension work now being carried on in this state under the direction of the Agricultural College Extension Service. As a result, the extension work now being done in Oregon is thoroughly organized and is being prosecuted according to a uniform plan and without conflict and waste.

The subject matter of extension work covers the entire college curriculum in so far as the various subjects will lend themselves to extension methods. The major part of the extension service is concerned with the various lines of agriculture and home economics, but to a lesser extent instruction in the subjects composing the courses in Commerce, Mining, Engineering, Forestry, etc., is included.

The extension service of the college is divided into several departments. The first division is known as general extension, and includes Farmers' Institute work, Itinerant Lecture work, Itinerant Schools, Demonstration Trains, Judging at Fairs, the demonstrations on the farms, in the orchards, and in the homes, and a great deal of personal advisory work.

The institute and itinerant lecture work is going on practically all of the time. Each Winter itinerant schools lasting from two days to a week are operated in various sections of the state. Such a series of schools is in operation at the present time and will be carried over a period of about 12 weeks, two schools being held simultaneously each week. The instructional staff consists of five or six regular people, who are assisted from time to time by other college representatives who come on for special work. Instruction is offered in practically all lines of agriculture and in home economics.

More stress is constantly being put upon the necessity for more intensive instruction. To this end, fewer institutes and single lectures are offered, and more schools and a greater amount of individual advisory work and field demonstrations are provided for.

The second general division of the extension work is known as the Industrial Club work. The purpose of this line of effort is to instruct the boys and girls of the state in the work of the farm and home and to

instruct them how to carry on these fundamental activities effectively, intelligently and economically. The work is carried on in co-operation with the public school organization and the United States Department of Agriculture. During the past year, 12,000 boys and girls were enrolled in the ten different projects provided for the year's campaign. Each project contemplates a year's work or a season's productive effort along some special line. The projects provided for last year were: (1) Corn Growing; (2) Potato Growing; (3) Vegetable Growing; (4) Poultry Raising; (5) Pig Raising; (6) Dairy Herd Record Keeping; (7) Sewing; (8) Cooking; (9) Canning; (10) Wood Working. The young people who enlisted in the service were furnished with bulletins giving instruction in clear, simple form, and were required to keep complete records of every operation that went into the development of the project they were studying. At the end of the season the results of the work were exhibited at county and school fairs and at the state fair. Those who proved most efficent were rewarded by prizes which consisted of money or commodities, and in the case of the two most successful boys from each county a trip to the state fair camp and school, where the boys were entertained and instructed without cost to them. The winner of each of the ten projects for 1914 will be rewarded by a trip to the Panama Exposition, with all expenses paid.

This year several new projects have been added, including a fruit club projects. This work is open to boys from 9 to 18 years of age and consists of the management of at least 10 bearing trees, all in the same row or block, for a period of at least eight months, beginning January 1, 1915. It includes the pruning, spraying and fertilizing of the trees and the harvesting, grading, and packing of the fruit, and the disposal of the culls and windfalls for canning. The project is divided into four divisions: One for apples, one for pears, one for prunes, and one for miscellaneous fruits. The awards will be based upon the following scale: Tree work, 15; soil work, 15; best box of fruit, 10; best display of fruit by-products, 10; best profit on investment, 30; bets project report and notebook, telling "How I Managed My Trees," 20, making a total possible score of 100 points.

The county agricultural work is another division of the extension service. This includes the work of the county agriculturist that may be provided for through the action of the various county commissions. These men take up their residence in the respective counties and devote themselves to the task of improving agricultural methods, developing markets for agricultural products, and help to better rural conditions in their counties. The work differs as widely as do the agricultural conditions and the various agricultural occupations in the counties. During the past year 10 counties have made provision for this line of work and as many county agriculturists are now in the service.

It is too early to determine definitely the value of this type of service, but the work of the past year is very promising. In Coos County, where the dairy industry dominates, the county agriculturist has organized 5 cow testing associations, with a total of 2,856 cows. In this way he is bringing about a very marked improvement in the dairy herds of the county. He has also been of very great assistance to the farmers in improving the dairy plants and in bringing about the better methods of dairy management. Other counties of the state yield equally striking evidence of the value of the work of the county men, and it is the belief of those who are following the work that the next two or three years' will bring about very definite improvements in the agriculture of the counties where this work is being prosecuted.

Another general division of the work is that of extension publica-

tions. During the past two years bulletins have been published under 72 titles, with a total of 341,900 copies. These publications have been prepared in simple, clear English and the material has been so organized that farmers and housewives of the state may read and understand and apply the information that is offered.

In addition to the regular extension bulletins, the extension service prepares and sends out thousands of short articles in the form of timely hints that are of value to the people of the state. These are circulated through the newspapers and periodicals that are willing to co-operate.

Besides these regular divisions of work, the college is co-operating with the United States Department of Agriculture in carrying on several special campaigns. During the past two years, through the assistance of the Federal Department, the state has enjoyed the services of two special field dairymen, one operating in Western Oregon and one in Eastern Oregon. These men have assisted the dairymen to organize for better dairy conditions and have spent a great deal of time in personal work on the dairy farms.

This co-operation has also made possible securing a specialist on hog cholera, who is now carrying on a campaign of education designed to guard against the development of that dread disease.

Through the same co-operation the college will soon have a farm management expert in its service who will carry on a series of farm surveys for the purpose of determining the profitable and unprofitable farm operations and thus to help to increase the efficiency of the business of farming.

The question of marketing and farm organizations will also receive special attention through the work of the new Bureau of Organization and Markets. As soon as a qualified man can be secured, he will be put into the field for the purpose of assisting the farmers in effecting their co-operative organizations, and particularly to aid in the solution of the marketing problem.

It is impossible in a short discussion to satisfactorily indicate the purpose and the methods that are involved in the conduct of the Extension Service of the Agricultural College. The machinery is necessarily very involved and quite extensive. The people of the state will know of it only as it serves them more and more as time goes on and the work is perfected and extended. This much can be promised, however, that if the people of the state continue their splendid co-operation, they have offered during the past year, the Extension Service will develop into a powerful agency in the development of the agricultural resources of the state and in the betterment of conditions in the open country.

Applause.

Col. Washburn: There are no more gentlemen present scheduled for addresses or papers. We have several papers here which can be read if the audience desires. These papers will be printed anyway, and I see that the committee on the Horticultural Law is now present and if the committee desires to make a report, I think the assembly is ready to receive it.

Mr. Beckwith: The committee on Legislative Horticultural Law has finished its labors and is ready to report. The hour is a little late and I think the subject matter is one that may require some time, and there is a bare possibility of a minority report, and I would suggest that it might be advisable, unless this convention is prepared to sit here for an hour or an hour and a half longer, to adjourn the hearing of this report until after luncheon hour.

Mr. Roberts: I would move that the hearing of the report be deferred until after the luncheon hour. That we meet

promptly at 1:30. It is a very important matter and will require considerable time. The law covering the conditions are quite lengthy and there are a great many conditions to be met. We are dealing not only in state terms but in interstate terms and we are attempting not only to cover an interstate and state conditions, but if possible to get down to the point where we can consider the local conditions of every community of our own state, and it makes it rather cumbersome—it gives opportunity for a great deal of discussion, and in view of that fact, I would move that we meet promptly at 1:30 to take up the report of this committee and discuss this law.

This motion was carried.

Mr. Bateham explained to the society that owing to the articles of incorporation the only thing this meeting could do in regard to the election of officers would be to hold a primary convention or an assembly, and that the legal number of members (which is 9) should meet in Portland the following Monday and formerly elect them.

Mr. Hetzel then read a petition from the Commercial Club of Corvallis, the citizens of Corvallis, the fruitgrowers, and the Agricultural College, giving a hearty invitation to this society to meet there next year.

This invitation was enlarged upon by Mr. Roberts, also Mr. McDonald.

Mr. D. M. Lowe moved that the next horticultural meeting be held at Corvallis in 1915.

Upon motion duly made, seconded and carried, it was unanimously decided to meet at Corvallis in 1915.

Col. Washburn: The officers to be elected are president, vice-president, secretary-treasurer, also three trustees, and from these three nominations of trustees the governor selects one to act.

The election of officers was postponed until the afternoon session.

On motion duly made, seconded and carried, the meeting adjourned until 1:30 P. M.

FRIDAY AFTERNOON, DECEMBER 4.

Meeting called to order by chairman at 1:45.

Vocal solo by Mrs. Bert Anderson, accompanied by Mrs. R. D. Hoke.

Reading by Mrs. Wilson. ....

The following committees were appointed:

Committee on Standard Box Containers, C. E. Whistler, A. P. Bateham, Dr. C. A. Macrum.

Auditing committee, A. Brownell, C. A. Burt, H. M. Williamson.

The committee on Resolutions reported as follows:

WHEREAS, through the courtesy of His Excellency, Hiram Johnson, Governor of California, it was possible for Dr. A. J. Cook, Commissioner of Horticulture of that state, to attend our twenty-ninth annual convention; and,

WHEREAS, the address and labors of Dr. Cook while in Oregon has greatly advanced the cause of strict and uniform horticultural laws for the Pacific Coast States; and,

WHEREAS, if the state legislatures of these interested states adopt the proposed laws recommended by Dr. Cook and others of the committee, inter-state shipments of horticultural and agricultural products will be greatly simplified and facilitated;

THEREFORE, BE IT RESOLVED, that this association extends its hearty thanks to Governor Johnson for delegating Dr. Cook to the two conventions held in this state; and also to Dr. A. J. Cook for the excellent suggestions contained in his address at the Medford meeting, and for his untiring work there and previously at Corvallis;

AND BE IT FURTHER RESOLVED, that these resolutions be spread upon the minutes of this Society and a copy thereof be sent to Gov. Johnson and to Dr. Cook.

WHEREAS, the 29th annual meeting of the Oregon State Horticultural Society held in Medford has been one of the most successful and enthusiastic ever held, due largely to the untiring efforts of the committee on entertainment, the Commercial Club and the daily papers; therefore be it

RESOLVED, that this body extends its thanks to the Commercial Club, the daily papers of Medford, to the press throughout the state, and to the general committee on arrangements, consisting of Guy W. Connor, H. A. Latta, C. W. Abercrombie, A. C. Fiero, F. W. Streets, J. A. Westerlund, J. A. Perry, C. M. Thomas and John Morrill, for their untiring efforts toward making this meeting the success that it has been.

RESOLVED, that the hearty thanks of this Society be extended to the Medford Automobile Club, the University Club, the ladies of the Greater Medford Club, to Mrs. Wm. Issacs and Mrs. Bert Anderson, for delightful musical numbers, to Mrs. Wilson, for her excellent readings, to Dr. F. H. Page, owner of the Page Theater, to Mr. E. M. Lowe, for arranging exhibits, to the Bagley Canning Co., to the Rogue River Valley Canning Co., to the railroad companies, for the reduced fare to the convention,—and especially to the several speakers who, by their presence and able addresses assisted so materially in the success of this convention.

RESOLVED, that the thanks of this convention be extended to Col. W. C. Washburn, who so ably presided over the sessions of this convention; to Mr. Frank W. Power, Secretary, for his long, untiring and most valuable services for the Society's interests, and to the committee on uniform horticultural legislation for their hard work in furthering that important subject; and to the other officers and members of the society who have given freely of their time and labors in its behalf.

On motion duly made, seconded, and carried, these resolutions were unanimously adopted.

Mr. Sheldon: There is a member of this society who has labored long and very earnestly for its success, who is not with us at this time, and I move that the secretary be instructed to send the greetings of this society and our organization to the retiring president, Mr. C. E. Whistler.

The motion was unanimously carried.

Col. Washburn: We will now have the election or nomination of officers.

Mr. Bateham: I desire to nominate Colonel Washburn as president of this society.

Mr. E. C. Roberts: I second the nomination.

It was unanimously carried that Col. Washburn be the next president.

Col. Washburn was then called upon for a speech and replied as follows:

"I thank you very much for this honor. I suppose there may have been some things cut and dried during this session, but I have not been aware of it, and I have had not the slightest notion of presiding at this meeting. I have presided at one or two little gatherings we have had here, but I had no intention of being so conspicuous at this gathering, and I was talking with a friend outside when they announced that I was elected chairman of the meeting. I have tried to keep things moving. I don't say that I can perform the duties of this office exceptionally well for geographic reasons. I often can't do as much as I want to do in this community, because I live 12 miles from town and if anything has to be done in matters of this kind, you know that people must be within easy reach, but so far as I could locally, I have done what I could for the interests of the community and the fruit industry especially, even though I make a 24 mile drive to get here. I have done everything with great pleasure, to get the information and instructions I have been able to get and to meet so good a number of men as have been present here during the past three days. I don't know how it will work out with so many active interests in the northern part of the state, the executive office must be there, which is a central point, but so far as I can, you may rely on my best efforts to promote the interests of this society and the interests of the fruit growing generally."

Applause.

On motion duly made, seconded, and carried, Hon. B. W. Johnson, of Corvallis, was unanimously elected vice-president.

F. W. Powers nominated C. D. Minton, of Portland, for secretary-treasurer.

On motion duly made, seconded, and carried, C. D. Minton was unanimously elected secretary.

On motion duly made, seconded, and carried, the following trustees were recommended: Albert Brownell, Portland; C. M. Thomas, Talent; H.

P. Lamb, of Milton. The Governor appointed Albert Brownell as trustee for three years.

Mr. Beckwith, as chairman of the Horticultural Law committee, made the following report:

Your committee approached their labors with a deep sense of the magnitude of their task and with a feeling that it would be very difficult in 24 hours, the time allotted, to digest and understand, and perhaps amend a bill of which consists of 51 sections and covers some 12 or 15 closely typewritten pages. The committee met yesterday afternoon at 3:30 and was in continuous session, with a recess for dinner, until after 11 last evening. It adjourned then until 9 this morning and had a second session until about 11:30, when its labors were ended in so far as could be.

This bill is the result of the combined study for perhaps two years of some of the best experts on the Pacific coast. It would be impossible for a committee of three or five appointed yesterday afternoon to go through that as carefully as perhaps it should be done, and to add very much to it that would make it a better bill. We read the whole bill without stopping, then went back and took up each section and each article and discussed and passed these articles or amended them as seemed to us best.

The bill in my opinion, and in the opinion of my associates on the committee, I think, is a very complete and satisfactory bill. I think it covers about what is desired, a uniform horticultural law that will prevail and be operative not only in the State of Oregon, but we hope in practically the same form in all our neighboring states. We are aiming in the consideration of this bill at something which will cover not merely the local section of Medford or Hood River, but something that will apply to the whole state,—that was our first object.

We got down after the consideration of the bill from that standpoint, to the question of local option and home rule and we spent a large portion of our time in working out an amendment to the bill which went as far as we thought we could make it go towards satisfying this particular district and any other district situated like us, on the question of home rule. I shall be very glad if the convention so desires, to read the bill. I think I can read it in half an hour. Very likely it would be better that this convention hear the whole language of the bill. It may be somewhat tiresome and there are some articles in it which you will pass undoubtedly without a question.

Mr. Beckwith then read the Uniform Horticultural Bill.

PROPOSED HORTICULTURAL BILL.

BILL NO.....

A BILL for an act creating the office of State Commissioners of Horticulture, defining their power and duties; prescribing for the appointment of inspectors, and their powers and duties; providing for the inspection of nursery stock, fruit trees, ornamental trees, shrubbery, plants, cuttings, grafts, buds, scions, seeds, pits, vines and all horticultural and agricultural plants and plant products thereof; requiring shippers of nursery stock to have same inspected by an inspector; prescribing quarantine and the method employed thereunder; providing for the disinfection of fruit, fruit trees, ornamental shrubbery, trees and all horticultural and agricultural plants and plant products thereof; defining the qualifications of inspectors and commissioners providing for the destruction of infested and infected fruit, fruit trees, ornamental

treesh, shrubbery, and all horticultural and agricultural plants and plant products thereof, including a lien against the property whereon the same is standing or growing, and providing for a right of action for all expenses incident thereto; authorizing the destruction of fruit, fruit trees, shrubbery, nursery stock and all horticultural and agricultural plants and products thereof infested or infected with pests or disease, and prescribing a salary for those enjoined to enforce the provisions of this act, and for their removal from office; to provide for the appropriation of money to pay the necessary expenses of the conduct of the office of State Commissioner of Horticulture and repealing sections—

Be it enacted by the People of the State of Oregon.

Be it enacted by the Legislative Assembly of the State of Oregon.

BOARD—HOW APPOINTED.

Section I. The office of State Commissioner of Horticulture is hereby created, which office shall be filled by appointment by the Governor.

Section II. The State Commissioner of Horticulture shall be a practical horticulturist, and have a working knowledge of entomology and plant pathology; he shall be appointed as soon as this act becomes effective and shall qualify within ten days after his appointment, and shall hold his office for a term of four years, or until his successor is appointed and qualified. He shall be a citizen of the United States.

COMMISSIONER, OATH AND BOND.

Section III. The State Commissioner of Horticulture shall take oath as any other officer, and execute a bond to the State of Oregon in the sum of Five Thousand ($5,000.00) Dollars with surety to be approved by the appointive power, conditioned for the faithful performance of his duties. The oath and bond shall be filed with the Secretary of State of the State of Oregon.

COMMISSIONER, REMOVAL OF.

Section IV. The appointing power may at any time remove the said Commissioner from office, upon filing with the said Secretary of State, a certificate of such removal. In case of a vacancy in the office of Commissioner by death, resignation or removal or other cause, the said appointing power shall forthwith fill the vacancy for the unexpired term.

OFFICE AT.

Section V. The State Commissioner of Horticulture shall maintain his office at (Portland, Oregon.)

COMMISSIONER, SALARY AND EXPENSES.

Section VI. The State Commissioner of Horticulture shall receive a salary of Three Thousand ($3,000.00) Dollars per annum payable monthly; he shall also be allowed not to exceed the sum of Two Thousand ($2,000.00) Dollars per annum traveling expenses for himself (and his assistants), not to exceed Two Thousand ($2,000.00) Dollars per annum for stationary, postage, telephone and incidentals, and not to exceed Two Thousand Five Hundred ($2,500.00) Dollars per annum for assistants.

COMMISSIONER, POWER OF.

Section VII. The State Commissioner of Horticulture shall have power and it shall be his duty:

(A) To enforce the laws and foster horticultural and agricultural interests of the State.

(B) Examine, upon request, specimens of fruit, fruit trees, plants, nursery stock, ornamental shrubbery and trees, and other horticultural or agricultural plants or products sent to him, and report to the applicant the result of such examination.

(C) Formulate rules and regulations for the guidance, and instruct, advise, direct and supervise the inspectors hereinafter provided.

(D) Hear and decide appeals from orders and decisions of inspectors.

(E) The Commissioner must make an annual report on or before the 1st day of December of each year to the Governor of the State, concerning general horticultural conditions and general statistics concerning the same as nearly as can be ascertained; also a report as to all acts and proceedings taken by him or under him, giving the names and terms of employment of all clerks and inspectors appointed and acting under him and the amounts in detail paid out by or under him, and generally report all matters of interest to horticulture or agriculture coming within his knowledge or under his observation.

(F) Formulate specific and necessary state quarantine regulations which must be approved by the Governor, and prescribe what is a menace or harmful to the horticultural or agricultural interests of the State.

(G) Perform such other duties as may be prescribed by law.

SECRETARY.

Section XI. The Commissioner of Horticulture may appoint a secretary who shall be thoroughly conversant in all matters pertaining to horticulture and agriculture and competent to perform the duties of the Commissioner of Horticulture in his absence or disability.

APPOINTMENT OF INSPECTORS.

Section XII. The State Commissioner of Horticulture shall appoint inspectors as required properly to perform inspection duties as and when necessary, not to exceed five (5) in number unless otherwise authorized in writing by the Governor. To be eligible to appointment, inspectors must have the qualifications and fitness for such office determined by an examination before the Commissioner of Horticulture and the Dean of the School of Agriculture of the State Agricultural College, or under Civil Service rules provided the State has a Civil Service Commission. The State may be divided into such inspection districts as may be deemed advisable by the Commissioner and the Associate Commissioners.

INSPECTORS, REMOVAL OF.

Section XIII. Any and all inspectors may be discharged, removed or suspended at the will of the Commissioner of Horticulture, and no inspector shall be retained in service, unless there are duties requiring his service.

INSPECTORS. SALARY AND BOND.

Section XIV. Inspectors shall be paid not less than Three ($3.00) Dollars nor more than Five ($5.00) Dollars per day for time actually employed, and shall be allowed necessary expenses while within the County, all payable monthly upon presentation of the proper vouchers

to the County Court of the County in which the work was done, the same to be approved and signed by the State Commissioner of Horticulture. Each inspector shall be required to furnish a bond in the sum of One Thousand ($1,000.00) Dollars to be approved by the State Commissioner of Horticulture conditioned for the faithful performance of his duty.

INSPECTORS. DUTIES AND POWERS.

Section XV. The inspectors shall be authorized and shall have power, and it shall be their duty:

(A) To enforce all laws relating to horticulture.

(B) To inspect orchards, nurseries, nursery stock, fields, fruit and all horticultural and agricultural plants and plant products thereof, supplies packing houses, warehouses, and other places where fruit, or other horticultural and agricultural plant products are packed, stored or shipped also vines, ornamental shrubs and bushes, as well as other trees and property, for the purpose of ascertaining whether the same is infected with any disease or pests injurious to fruit trees, fruit or other horticultural or agricultural plants and to take steps to disinfect the same and prevent spread thereof, and, for that purpose, shall have free access to orchards, nurseries, fields, packing houses. storage houses and any other place containing such plants or products at all times.

(C) To require the disinfection of all trees, ornamental shrubbery, orchards, nurseries or nursery stock, fruit packing houses or any other place infected with any pests, fungi or diseases injurious to the horticultural or agricultural plant or plant products of the State of (Oregon).

(D) To inspect and examine orchards, fruit, nursery stock, fields, and all other horticultural and agricultural plants and plant products, at the request of the owner thereof, for the existence of any disease or pest thereof ,and report to the applicant the result of such investigation and prescribe proper remedies therefor.

(E) To prevent the shipping and sale of infected fruits, except that for commercial canning, preserving or jellying or making of cider or manufacture of other by-products within the State of Oregon. Such infected fruit may be sold under such rules and regulations as may be established by the State Commissioner of Horticulture.

(F) To prevent the delivery, sale, planting or shipping of infected nursery stock, fruit, fruit trees and other horticultural or agricultural plants or plant products and supplies, by notifying the owner thereof or the person having the same in charge, and requiring the proper disinfection of the same.

(G) To disinfect or cause to be disinfected, orchards, nursery stock, trees, fruit and other horticultural or agricultural plants or plant products, and to destroy or cause same to be destroyed those which cannot be properly disinfected.

(H) To sort and repack, or cause to be sorted and repacked, infected fruit, or other horticultural or agricultural plants or plant products, if the owner thereof, or the person having the same in charge shall not do so after notice subject to the direction of the Commissioner of Horticulture.

(I) To prevent the introduction and spread of disease or of pests injurious to fruit trees and horticultural or agricultural plants, fruit and other horticultural and agricultural plant products, and to prescribe and specify the means and methods to be employed for the disinfection of trees, fruit and horticultural and agricultural plant products, subject to the approval of the Commissioner of Horticulture.

(J) To issue certificates of inspection to nurserymen and tree dealers or other persons on stock, and fruit inspected.

(K) To perform such other duties as may be prescribed by the State Commissioner of Horticulture.

(L) Each inspector shall attend an annual meeting and such other meetings of the State Inspectors at such times as may be designated by the Commissioner of Horticulture.

OWNER TO SPRAY AND DISINFECT.

Section XVI. It shall be the duty of each person within the State of Oregon owning or in possession of premises on which there is or shall be growing or grown any nursery stock, fruit, fruit trees, shade trees, ornamental shrubbery or other horticultural or agricultural plants, or the owner or possessor of any nursery stock, fruit, fruit trees, shade trees, ornamental shrubbery, horticultural or agricultural plants or plant products, or situated upon premises owned, leased or occupied by him, or the owner of any nursery stock, fruit, fruit trees, shade trees, ornamental shrubbery or other horticultural or agricultural plants or plant products situated or being at any place within the State of Oregon, to take, adopt and use all methods and means provided by law or prescribed by the State Commissioner of Horticulture, for the prevention of pests or diseases to which nursery stock, fruit, fruit trees, shade trees, ornamental shrubbery or horticultural or agricultural plants or plant products may be subject, and keep the same in a healthful condition and free from disease and pests; and in the event it is found that such nursery stock, fruit, fruit trees, shade trees, ornamental shrubbery or horticultural or agricultural plants or plant products at any time are infected with any disease or pest to which the same may be subject, to promptly take and use such methods as may be prescribed by law or by the State Commissioner of Horticulture to disinfect the same, and in the event such nursery stock, fruit, fruit trees, shade trees, ornamental shrubbery, horticultural or agricultural plant or plant products cannot be disinfected to promptly destroy the same.

COMMISSIONER TO SPECIFY PESTS AND DISEASES.

Section XVII. The diseases or pests injurious to nursery stock, fruit, fruit trees, shade trees, ornamental shrubbery and horticultural or agricultural plants or plant products to be guarded against and treated and disinfected for, as in the next preceding section provided, shall include any and all such diseases or pests as the State Commissioner of Horticulture shall specify as injurious to the fruit and horticultural or agricultural interests of the State.

RULES AND REGULATIONS.

Section XVIII. The State Commissioner of Horticulture shall suggest the remedy and the methods and means for the disinfection of fruit trees, horticultural and agricultural plants, fruits and plant products, and shall make such rules and regulations relative thereto as he shall deem proper, which suggestions and rules and regulations shall be promulgated by him by means of bulletins, and any person interested shall be entitled to receive a copy of all such suggestions and rules and regulations at any time upon application for the same.

INSPECTOR AUTHORIZED TO ENTER PREMISES.

Section XIX. For the purpose of ascertaining whether any nursery stock, fruit, fruit trees, shade trees, ornamental shrubbery or other

horticultural or agricultural plants or plant products are infected with any disease or pests to which same may be subject, the inspector shall be authorized to enter upon any premises at any time for the purpose of inspecting and examining any nursery stock, fruit, fruit trees, or horticultural or agricultural plants or plant products growing or stored thereon, or being situated thereon.

INSPECTOR AUTHORIZED TO ENTER PREMISES WHERE FRUIT, ETC., ARE STORED.

Section XX. Said inspectors shall have the power at any time to enter any premises where fruit or horticultural or agricultural plant products are stored or are being prepared or packed for shipment or offered for sale, or are held for the purpose of delivery upon any shipments or sale thereof, for the purpose of inspecting said premises and such fruits, horticultural or agricultural plant products to ascertain whether the same, or any part thereof, is infected with any of the diseases or pests declared injurious by the State Commissioner of Horticulture.

NOTICE TO DISINFECT OR DESTROY.

Section XXI. If, after inspection, as provided in Sections XIX and XX hereof, the inspector shall ascertain that any nursery stock, fruit, fruit trees, shade trees, ornamental shrubbery or horticultural or agricultural plants or plant products, or any place where such fruits, or horticultural or agricultural plant products are kept for sale, or are being prepared for shipment or are stored, are infected with any disease or pests declared by the State Commissioner of Horticulture, to be injurious to the horticultural or agricultural industries of the State, said inspector shall notify the owner or lessee, or person having charge of the premises whereon said infected nursery stock, fruit trees, fruit or horticultural or agricultural plants or shrubbery or plant products are standing or growing or held, or the owner or person having possession or charge of such nursery stock, fruit trees, shade trees, ornamental shrubbery, horticultural or agricultural plants, fruit, horticultural or agricultural plant products, or places of storage for sale or preparation for the market, in person or writing, requiring the disinfection of any or all thereof which are capable of disinfection, and the destruction of such as are incapable of proper disinfection, subject to the provision hereof relative to the sale, disposition and use of infected fruits, and shall fix a reasonable time in said notice within which the same shall be so disinfected or destroyed as the case may be, and such owner or person having same in charge shall proceed to disinfect or destroy such stock, trees, fruit or horticultural or agricultural plant products, as the case may be, in the manner required by the law, and in the manner prescribed by the State Commissioner of Horticulture, and within the time specified in said notice. Said written notice may be given by registered letter, the signed receipt of the same by the addressee being prima facie evidence of the receipt of the notice.

SEPARATING—DISINFECTING.

Section XXII. In the event of the infection of nursery stock, trees, fruits or horticultural or agricultural plants or plant products, as hereinbefore specified, if a part only thereof is infected so that it cannot be properly disinfected, the owner or person in charge of the same shall have the privilege of separating the same into one or more

of three classes, to-wit: Such as does not need disinfection; such as can be properly disinfected; and such as cannot be properly disinfected; and such owner or person in charge shall destroy such stock of trees, fruits or horticultural or agricultural plants or plant products as cannot be disinfected within the specified time in said notice, except in case of fruit or vegetables which may be used or disposed of for canning, preserving, drying, and other by-products, under the rules and regulations prescribed by the State Commissioner of Horticulture, as herein provided, and shall proceed to disinfect such as can properly be disinfected within the time specified in said notice.

INSPECTOR MAY SEPARATE, DISINFECT OR DESTROY.

Section XXIII. In event of the failure of the owner or person in charge of such stock, trees, fruit or horticultural or agricultural plants or plant products, to separate and disinfect or destroy the same, as in the last preceding Section provided, and within the specified time in said notice, the inspector shall have the right to enter upon the premises and perform the acts herein provided for, or cause the same to be performed, at the expense of the owner or person having charge of such stock of trees, fruit, horticultural or agricultural plants or plant products, and shall declare the same a nuisance and have the right to destroy all stock, fruit, horticultural or agricultural plants or plant products which are infected so that they cannot be properly disinfected.

COST PAID BY OWNER FOR DISINFECTION.

Section XXIV. In event of disinfection or destruction of any orchard, or fruit trees, ornamental trees, shrubs, vines, horticultural or agricultural plants, fruit, horticultural or agricultural plant products or other property by the inspector, or any person under his direction or orders, the cost thereof shall be charged against the owner of such stock, fruit or products and the premises upon which the same may be growing, for the cost of such disinfection, or the destruction of the property which cannot be properly disinfected, which charge may be recovered in an action at law in the name of the State of Oregon upon the complaint of the inspector against the owner or person having charge of such property; and shall also constitute a lien against the said property, and the premises upon which the same may be growing, which lien may be enforced in any court of competent jurisdiction, and the bringing of an action at law to recover such costs shall not be deemed to be and shall not constitute a waiver of such right of lien.

FINE FOR DISOBEYING ORDERS TO DISINFECT OR DESTROY.

Section XXV. Any person failing to disinfect or destroy any nursery stock, shade trees, ornamental shrubbery, fruit, horticultural or agricultural plants or plant products, or disinfect the premises upon which the same may be situated, as herein provided, within the time specified after notice from the inspector of the district wherein the same is situated, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not to exceed Two Hundred Fifty ($250.00) Dollars.

NOTIFY COMMISSIONER OF INTENTION TO SHIP.

Section XXVI. It shall be the duty of each person, firm or corpora-

tion dealing in nursery stock, or horticultural plants within the State of Oregon to notify the State Commissioner of Horticulture of his, their or its intention to ship any nursery stock, fruit trees, or horticultural plants from one point in this State, or from any point without the State to a point therein for sale or for delivery, or for planting or propagation. Said notice shall be mailed not later than the date of shipment, and the same shall show the name and address of both the consignor and consignee. Said notice shall also show whether such stock of trees, or horticultural plants have been inspected and passed at the initial point of shipment within this State by an inspector.

NURSERY STOCK AND OTHERS, INSPECTED AT INITIAL POINT.

Section XXVII. All nursery stock must be, and all fruit and other agricultural plants or products for the State or interstate shipment, may be inspected at the initial point, and on such inspection if found free from injurious insect pests and diseases, a certificate shall be issued showing the condition of said stock, fruit and other agricultural products, and such certificate when covering a shipment for delivery within this State may be accepted by the inspector at destination without further inspection. If said nursery stock, fruit or other horticultural or agricultural plant products when inspected at the initial point are found infected with injurious insects or diseases, the inspector shall order it disinfected, or destroyed, as the case may warrant.

NOTIFICATION OF ARRIVAL AT DESTINATION.

Section XXVIII. Upon the arrival of any shipment of nursery stock, fruit trees, or horticultural or agricultural plants at its destination, it shall be the duty of the freight agent, express agent, or the persons or transportation company having such shipment in charge for delivery, unless the same is accompanied by a certificate of inspection and approval by an inspector showing that same was inspected and passed at the initial point of shipment, within this State, to notify the local inspector where delivery is to be made, of the receipt of such shipment, giving the name of the consignor and consignee, and stating that such shipment is ready for inspection and delivery. Such notification may be by telephone or telegraph, or by written notice delivered personally to said inspector, or left with some person of suitable age and discretion at his or her residence or office, or by mail addressed to said inspector at his place of residence; and the person having such stock in charge for delivery shall not deliver or turn over such shipment until same shall have been inspected by a horticultural inspector.

Provided, however, no further inspection at point of delivery shall be made, if shipment is accompanied by the certificate of an inspector showing inspection and approval at initial point of shipment within the State aforesaid, unless under special rules made by the Commissioner of Horticulture. Any person may demand and have the exclusive services of a regularly appointed inspector, provided it does not impair the general service, for such time as may be required upon application to and approval by the State Commissioner and by paying the wages of such inspector into the State Treasury under arrangement with the State Commissioner of Horticulture.

INSPECTION ON ARRIVAL, EXCEPT WHEN INSPECTED AT INITIAL POINT.

Section XXIX. The inspectors shall have the right to enter upon any premises where nursery stock, fruit trees or horticultural or agri-

cultural plants or fruit, vegetables or other agricultural or horticultural plant products are held or stored, when same have been shipped or sent to any point within the State for the purpose of sale or delivery, and to inspect such stock, trees or plants, fruit, vegetables or other horticultural or agricultural plant products for the purpose of ascertaining whether the same is infected with any of the diseases or pests menacing the horticultural or agricultural interests of the State to which the same may be subject, as hereinbefore described; and, in event he shall find such stock, fruit, vegetables or horticultural or agricultural plant products, trees or plants or any part thereof, are infected with any such disease or pest, he shall at once notify the person in charge thereof and having the same in his possession, not to deliver the same or permit the same to be removed from his possession until they are disinfected, and he shall also notify the owner thereof, or the agent of the owner, or the shipper thereof, or his agent, to disinfect such part thereof as is capable of proper disinfection within a reasonable time from the date of such notice in the manner required by law and prescribed in the rules and regulations of the State Commissioner of Horticulture, and it shall be the duty of such owner or his agent or the shipper of such goods to so disinfect and destroy such infected property within a reasonable time. Nothing in this section shall be construed to apply to any nursery stock, fruit or products which have been already inspected and passed by the inspector at the initial point of shipment within the State, unless under special rule made by the Commissioner of Horticulture.

FINE FOR VIOLATION.

Section XXX. Any person violating any of the provisions of the last named preceding section hereof, shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined in any sum not less than Five ($5.00) Dollars, nor more than Fifty ($50.00) Dollars.

INSPECTOR MAY DISINFECT OR DESTROY.

Section XXXI. In event of failure of the said owner or his agent, or the shipper of such infected goods to properly disinfect and destroy same as required by notice hereinbefore provided for, it shall be the duty of the inspector, and he shall have the power to forthwith enter upon premises where such nursery stock, trees, plants, fruit, vegetables or other horticultural or agricultural plant products are situated and to properly disinfect or cause to be disinfected such part thereof as is capable of disinfection, and to destroy such part thereof as is not capable of disinfection.

COSTS TO BE PAID BY OWNER.

Section XXXII. In case of disinfection and destruction of diseased or infected fruit, vegetables, or nursery stock, or other horticultural or agricultural plants or plant products by the inspector, as in the last preceding section provided, the cost thereof shall be paid by the owner of said fruit, vegetables, or nursery stock, or other horticultural or agricultural plants or plant products, or his agent or the shipper of said fruit, stock or products, and such charge shall be a lien upon said property, and the enforcement of such charges may be paid in the same manner as provided for the enforcement of charges for inspection and disinfection of nursery stock, fruit and orchards as hereinbefore provided.

RECIPROCITY BETWEEN STATES.

Section XXXIII. When the State Commissioner of Horticulture has

sufficient evidence that the inspection of fruit, fruit trees, nursery stock, plants, cuttings, grafts, buds, scions, seeds, pits, shrubs, vines, ornamentals, vegetables or horticultural or agricultural plants or plant products in any state or territory is as thorough and effective as that prescribed in this State, he may instruct that shipment of such fruits, fruit trees, plants or plant products bearing certificates of inspections from any such state or territory shall be delivered to the purchaser upon arrival at destination without being held in quarantine for further inspection, and shall notify all transportation companies, etc., of the existence of any such state or territory, so that the agents of such companies, etc., shall proceed accordingly.

HIGHWAYS AND PUBLIC SERVICE RIGHT-OF-WAYS.

Section XXXIV. It shall be the duty of the inspector to disinfect or caused to be disinfected any bush, shrub, tree or plants standing or growing on any public highway in this State, right-of-way or canal, or irrigation company, or on the right-of-way of any public service or transportation corporation, easement, right-of-way, parks, or cemeteries, or public property whenever such public service tree or plant is in such disease or insect infested condition as to be a menace to the horticultural interests of the State, and when same cannot be eradicated by disinfection or otherwise, to summarily destroy same by burning with fire. The expense of which shall be recovered as designated in Section XXIV of this act, provided, however, that the State or any County of the State may be privileged to disinfect or destroy and burn under the direction of the State Commissioner of Horticulture, any infected bush, shrub, tree or plant standing or growing on any State or County public highway, or property within a reasonable time after request is made by inspector.

LICENSE FOR PUBLIC SPRAYING AND FUMIGATION.

Section XXXV. It shall be the duty of every person, firm or corporation desiring to do public spraying or fumigation to obtain a permit therefor from an inspector, which permit shall be furnished, providing the applicant shall show a proper knowledge of the character and time of spraying or fumigation or other treatment, the material to be used to bring about the best results for the destruction of insect pests and disease, and said permit shall be given without cost to the applicant on blanks furnished by the State Commissioner of Horticulture, conditioned upon his being qualified. Any person, firm, or corporation failing to obtain said permit or willfully disregarding any of the essentials of spraying or fumigation shall be guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of Ten ($10.00) Dollars to One Hundred ($100.00) Dollars.

DEFINITION OF INFECTION.

Section XXXVI. The term "infection" as used in this shall mean the finding of any nursery stock, fruit trees, fruit or horticultural or agricultural plants or plant products or supplies used in connection with horticultural or agricultural plant or plant products to be affected by any one of the species of infection or disease or pest specified and described by the State Commissioner of Horticulture as provided in Section XVII of this act.

APPEAL.

Section XXXVII. Any person deeming himself aggrieved by any finding, order or act of an inspector may appeal from such finding,

order or act, to the State Commissioner of Horticulture (and his associates) and said State Commissioner of Horticulture shall forthwith proceed to hear and determine such appeal and render his decision thereon, and report the same to the appellant and to the inspector from whose action or decision such appeal is taken; and such decision shall specify the further proceedings to be had in the premises. Prior to, and during such appeal, inspector or person having such nursery stock, fruit trees, fruit, horticultural or agricultural plants or plant products in charge shall carefully keep and hold same in as nearly the same condition as when received as the nature of the fruit, fruit trees, nursery stock, horticultural or agricultural plants or plant products will permit, and no inspector or person having same in charge shall be permitted to destroy said plant or product during such appeal, or if notified that such an appeal will be taken from his order or decision, until such appeal has been fully determined by the Commisioner of Horticulture, and in case the decision of the Commissioner of Horticulture or his associate is not satisfactory to the appellant, he may carry the case to the Civil Courts of the State of Oregon.

QUARANTINE.

Section XXXVIII. It is hereby specially provided and expected that in case the said nursery stock, fruit trees, fruit or products shall contain some new pest or disease which is liable to become a menace to the horticultural or agricultural interests of this State, and in the opinion of the Commissioner of Horticulture it is necessary to issue a special quarantine against same to protect said horticultural and agricultural interests, he may provide in said quarantine that said fruit, nursery stock, fruit trees, horticultural or agricultural plant or plant products upon which the pest or disease is found may be immediately destroyed upon finding, to prevent danger of same spreading and becoming a menace to said interests.

OATHS, WHERE FILED.

Section XXXIX. All oaths and bonds provided for herein shall be filed with the State Commissioner of Horticulture, except the oath and bond of said commissioner (and associate commissioners) which shall be filed with the Secretary of State.

INSPECTION CERTIFICATE.

Section XL. The several inspectors shall, upon the inspection of any nursery stock, fruit, agricultural or horticultural plant or plant products, trees, or plants, issue and deliver to the owner or person in charge thereof, a certificate of inspection, over his signature, showing the date of inspection and condition of stock, trees or plants or fruit or other agricultural or horticultural plants, or plant products.

FINE FOR WRONG USE OF CERTIFICATE.

Section XLI. Any person to whom a certificate of inspection shall have been issued, showing condition of nursery stock, fruit, property or material inspected, who shall substitute the said stock, fruit, horticultural or agricultural plant products, property or material so inspected any other stock, fruit, horticultural or agricultural plant product, property or material not covered by said certificate, and shall sell or dispose of the same under said certificate of inspection, shall be guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than One Hundred ($100.00) Dollars, nor more than Five Hundred ($500.00) Dollars, together with the costs of action.

SALARY OF INSPECTOR—HOW PAID.

Section XLII. The salaries, compensation and expense of all inspectors doing State work shall be paid by order drawn on the State Treasurer upon vouchers presented to the Secretary of State, signed by such inspectors under oath and countersigned by the State Commissioner of Horticulture.

FINE FOR HINDERING INSPECTION.

Section XLIII. Any person offering any hindrance to the carrying out of this act or in any manner preventing or hindering any inspection herein provided for, shall upon conviction be fined not less than Five ($5.00) Dollars or more than Fifty ($50.00) Dollars.

COUNTY MAY EMPLOY EXPERTS.

Section XLIV. Upon the petition of twenty-five fruit growers, the County Court of any county may, except as hereinafter provided, appoint a competent person to act as Chief County Inspector, who must qualify under the rules and regulations prescribed in Sections XII and XV of this act for State Inspectors. Such Chief County Inspector shall have and exercise all the powers and duties in this act provided for State Inspectors, and shall have jurisdiction over the Horticultural Inspection work of such County, under the direction of the State Commissioner of Horticulture.

The County Court may, except as hereinafter provided, whenever in its judgment it is necessary or for the best horticultural interests of the county, appoint such Deputy County Inspectors for field and orchard work as it deems best, who shall be recommended to said Court by said Chief County Inspector, for appointment or removal, and who shall perform such work under the direction and supervision of the Chief County Inspector, and in accordance with such rules and regulations as he may prescribe.

In counties having a County Agriculturist, who is an accredited pathologist or entomologist, the Chief County Inspector shall be appointed by such County Agriculturalist and must qualify under the rules and regulations prescribed for Chief County Inspectors, and State Inspectors. The said County Agriculturist may, after thorough examination, appoint Deputy County Inspectors for field and orchard work, in such number and at such times as may be necessary or for the best horticultural interests of the County, and as may be authorized by the County Court. Deputy County inspectors shall work under the direction and supervision of the Chief County Inspector and in accordance with such rules and regulations as the County Agriculturist may prescribe. The tenure of office of such Chief County Inspectors, and Deputy County Inspectors shall be at the will of the County Agriculturist. All salaries, wages and expenses connected with such offices shall be paid by the County Court.

SUIT, HOW INSTITUTED

Section XLV. In case of a violation of any of the provisions of this act, it shall be the duty of the State Commissioner of Horticulture and the inspector to present the evidence of the case to the (District) Attornev, whose duty it shall be to prosecute any person guilty of a violation of this act in the State of Oregon, which prosecution may be brought in any of the Justice's Courts.

COMMISSIONER, CUSTODIAN OF PROPERTY

Section XLVI. The State Commissioner of Horticulture shall take charge and be the custodian of all property of whatsoever kind now in possession of the existing State, and which belongs to the State of Oregon, and the Secretary of said State of Oregon shall carefully list all of such property and file copy with the Secretary of State at such time as this act becomes effective.

RECORDS.

Section XLVII. All records, reports, data and information kept and compiled by the State Commissioner of Horticulture, shall be kept in his office and shall be a public record, open to the inspection of any person interested, during the regular office hours of each business day.

Section XLVIII. Sections 5470-5502 inclusive of Lord's Oregon Laws and Chapter 154 of 1911, Chapter 246 of 1913 be and the same are hereby repealed.

Section XLIX. All acts and parts of acts inconsistent with this act are hereby repealed.

Section L. That there be and hereby is appropriated out of any money in the State Treasury not otherwise appropriated, the sum of Thirty Thousand ($30,000.00) Dollars for the biennial period of 1915-1916, or so much thereof as is necessary to pay for the conduct of the office of the State Commissioner of Horticulture.

Mr. Beckwith: The committee approves and respectfully suggests that in this form it be ratified and approved by this society.

There was some little opposition to the bill regarding section 44 and there followed quite a discussion which was purely local.

Mr. Beckworth then said: I move Mr. Chairman that the bill which has been reported on today be approved by this society and recommended to the legislature as read with the exception of section 44, and if it is permissible that the present committee be enlarged and instructed to consider section 44 and report at some later date to the president of this society.

This motion was seconded and carried.

The chairman then appointed five additional members.

Mr. Minton then read a Memorial as follows:

To The Washington Horticultural Society:

The Oregon Horticultural Society in convention assembled at Medford, Oregon, sends greeting to our sister State to the North, and respectfully requests her earnest consideration of the proposed Uniform Horticultural Bill attached herewith, which bill has recently been endorsed by a convention of horticultural and scientific men invited by the Governor of Oregon to discuss this matter, from the different Pacific Coast States and Rocky mountain States, at Corvallis, Oregon, November 30 and December 1st.

After the most careful consideration this convention recommends the draft for a uniform bill to be presented to the different legislatures with such changes as may be necessary to cover local conditions covered by the territory named.

A committee of our society has gone carefully over this proposed uniform bill and reported that it is carefully drafted, and has recommended that it be endorsed by our Association, which has been done and we be-

lieve that it embraces all the fundamental principles and safeguards to properly protect, conserve, and foster all the various horticultural interests of the Pacific Coast and Rocky Mountain States, and that by its uniform passage in the different legislatures of these States it will be a great factor in the development of inter-state trade in horticultural and agricultural products.

On motion duly made, seconded and carried the Memorial was unanimously adopted.

Mr. Latta, Mr. Conner and Col. Washburn were appointed to settle all accounts.

Mr. McDonald then thanked the society and especially the committee that worked on the horticultural bill.

On motion of Mr. Bateham the meeting adjourned until Monday, in Portland, at 2 o'clock, in room 416 Commercial Club Building.

The meeting adjourned.

EXPERIENCE IN WALNUT GROWING AT MEDFORD.

By Edward P. Geary

In view of the successful growing of walnuts in Oregon and the standardization of the product by the methods of grafting and budding, a description of my little group of seedling trees may seem like a voice from the past.

It has not been long since, so called, second generation trees or the trees grown from nuts of a grafted tree were recommended as producing a reliable product.

This theory which first came to my attention through the catalog of Felix Gillette of Nevada City, California, was acted upon in planting my collection of trees in Griffin Creek valley, five miles from Medford.

Many unsuccessful efforts to grow the walnut in Oregon were no doubt due to attempts to introduce varieties belonging to warmer latitudes, such as the Santa Barbara district in California, blooming too early for even the Southern Oregon climate.

The introduction of the Mayette, Franquette, Chaberte and other late varieties, mostly, I think, brought from France, marked an important epoch in the industry in this State, making the product as safe and sure as the apple with no sacrifice of quality.

I was fortunate in planting seedlings from such varieties.

The importance of a grove or group of trees such as the one at Geary Orchards, lies largely in some lessons to be learned in its rather eventful history. It presents an example of the wonderful vitality of little yearling plants with sturdy roots, and of their persistance to become trees.

My grove is almost an accident as we planted it eighteen years ago, when lack of suitable help made a planting of fruit trees disastrous from borers.

My trees were obtained from different sources, a part of them, so-called second generation trees, from the nursery of Felix Gillette, and two grafted trees from the same source, some from a friend who had planted some walnuts out of the store and a few of my trees were from the planting of nuts from two trees on Wagner Creek, on the old Purvis farm.

These two trees were, I understand, planted many years ago by the father of Mr. Purvis and grafted by him on black walnut roots, the nut I think is a Chaberte.

The first trees were planted somewhat irregularly and had but little attention. They grew in spite of alternate care and neglect, as I was fortunate or otherwise in those in charge.

Some of the trees were uprooted after a year or two in one place and changed to different locations to be out of the way.

Cattle trampled them down and the only two grafted trees we had were broken off below the grafts and took their places among the seedlings.

It may be said, "we do not know who planted or who watered" many of them, but we do know that "God alone gave the increase."

We had never taken the walnuts seriously until we found we had many more of them than we could use.

The land on which the trees were grown is especially good, deep and subirrigated, a spring well in the midst of the group, twelve feet deep and tapped by a horizontal pipe, supplying the house and barn with running water.

Disappointment comes from planting the walnut in unsuitable soil, and care cannot fully make up for a mistake in this particular.

I have in mind a friend, who sent some fine trees to be planted on his farm in a good section of the valley and lost them all by the usual neglect of uninterested help and careless selection of location for planting.

The noted trees of the world have been planted where the massive tap root reaches down deep through rich soil to perrenial moisture.

In this beautiful valley and its tributaries may, I think, be found many such places, though, as in the nut districts of Europe, it is not usual to find sites for large plantings. Indeed it is claimed that the world's supply of walnuts receives greater additions from the aggregate of small groups and individual trees than from large groves.

In this connection a citizen of Portland who had a large body of land on which he was advised to plant walnuts, changed his mind after a visit to France and Germany to investigate nut culture there.

In a district near Paris noted for its walnuts he found many remarkable trees, some of them several centuries old and producing large quantities of delicious nuts.

Such trees he found invariably situated near a water course in deep soil, while groves contiguous, departing from these conditions, soon changed to ordinary or inferior trees.

He returned home with the conviction that large acreages were only exceptionally adapted for walnut growing.

Such areas are however found in the larger valleys of Oregon and California.

Nothing would seem more ideal, than the distribution of this wonderful product to many homes, each, with its door yard or garden trees producing standard nuts of sure value.

Such a tree might help to send your boy and girl to college and attract them home again with its summer shade and Christmas cheer.

It has been said that the idea of futurity developes late in life. The child has it in but a small degree and may hoard his pennies for a few weeks before Christmas, but an old man, nearing life's close, will plant a tree. Let him do this. Let his fading view of things present change to a vision of the coming years. Let him, in some favored nook, plant the delicious Franchette, and he will see a sturdy beautiful tree, giving shade and food and pleasure to those who come after him. What better remembrance could one desire?

The vision is worth while.

Nov. 27, 1914.

STANDARD BERRY BOXES.

By J. B. Knapp

The spirit of modern business demands equitable and fair treatment between producers and consumers. It is this spirit which has prompted the recent nation wide agitation for the standardization of all forms of shipping containers, especially those containing articles which are sold directly in the containers, for which the containers themselves have come to be known as a unit of measure. Variations in the size of such containers are deceptive to the consuming public and are often used as a means for fraudulent transactions.

The creation of standard containers prevents fraud and insures equality of competition between producers of like commodities. Standardization is a protection to the consuming public and insures the consumer of the delivery of the exact quantity of the commodity for which he bargained.

At the last bi-ennial session of the Legislature of the State of Washington, an amendment to the Weights and Measures laws of that State was adopted. This amendment created a standard container for the packing and sale of berries. The Washington law requires that all berries packed and sold in the State of Washington shall be packed in boxes containing the full United States Standard Dry Quart of 67.2 cubic inches or the United States Standard Dry Pint of 33.6 cubic inches. This law is similar in its requirements to the weights and measures laws of 14 other States of the United States. The laws of all these States pertaining to the sale of berries or berry boxes, are uniform and their requirement that the U. S. standard dry quart and pint shall be the unit of measure. Of our Western States, Washington and Nevada are the only ones which now provide berry boxes by law.

Non-uniformity of State laws and the passive action of some States in specifying no laws for shipping containers of this sort, create a chaotic condition in the market for boxed commodities, and cause untold grief to all who participate in the trade involving such commodities. In such States as are not provided with suitable laws, custom dictates practice, and there is no uniformity of the size of containers even within small sub-divisions of the commonwealth. In many instances we find City ordinances specifying standard containers, many of which are in direct conflict with the ordinances of other cities; while, on the other hand we find competing producers of box commodities using containers of variable volume. In such cases unequal competitive advantages are introduced between producers, and the public is deceived as regards the quantity of any commodity it is purchasing.

The State of Oregon has no law regulating the size of berry boxes, and as a result of the operation of the Washington law during the past year, several sizes of berry boxes have been found in the Oregon markets. On the other hand, Oregon berry growers during the past season have been restricted in the market for their berries unless they were packed in the Washington standard boxes.

Until recently it has been the practice of Northwest berry growers to pack and market their product in boxes supposed to contain a pound or one-half pound avordupois. This arbitrary standard resulted in no definite volume requirement and there were no laws for the enforcement of this arbitrary standard. Experience has proven rather, that commodities like berries should be sold in standard volume rather than by standard weight, the shrinkage in weight, between the time of packing and the time of sale being one of the chief objections.

After the passage of the Washington law, which prescribes volume

requirements only, a convention of interested parties, including berry growers, shippers, box manufacturers and commission merchants held in Portland, Oregon, for the purpose of establishing definite dimensions for berry boxes to contain the required U. S. Standard dry quart and U. S. Standard dry pint. These standard boxes were used in the State of Washington during the past season, and gave complete satisfaction, insofar as the growers, shippers and commission merchants were concerned. It was expected by the Washington Legislature at the passage of this bill, that practically all strawberries and other hard berries would be used or marketed in the quart box and that pint boxes would be used for softer berries. This however was not the case, and the strawberry growers in all instances packed and sold strawberries packed in the new size pint boxes. It may be explained that the standard quart box is somewhat larger than the old pound box used in previous years and the standard pint box is slightly smaller. This created some complaint in the part of the consuming public because they obtained shorter measure than in previous years, since the price adjustment to compensate this shortage being in less proportion than the shortage seemed to warrant. This, however, should be no objection to the law defining a standard volume for berry boxes, however, the price differences to compensate differences of measure should be made.

To bring about harmony in the distribution and sale of berries grown in the State of Oregon, it is proposed that the legislature of this State be called upon to enact a law requiring that berries packed and sold in Oregon, be packed in boxes containing the full U. S. Standard dry quart of 67.2 cubic inches or the U. S. Standard dry pint of 33.6 cubic inches. Such a law would conform with laws in 14 other States of the United States, and would conform with the opinion of berry growers, distributors and marketing agencies throughout the entire United States. The law of the State of Washington pertaining to this subject is quoted herewith:

Berries.

All sales of blackberries, currants, strawberries, raspberries, cranberries, blueberries, gooseberries, cherries and similar berries in packages containing less than one bushel shall be sold by the dry quart containing 67.2 cubic inches or the dry pint containing 33.6 cubic inches, and all berry boxes sold, used or offered for sale within the State shall be of the interior capacity of 67.2 cubic inches, or 33.6 cubic inches, unless the same is labeled in plain English words or figures with its correct interior capacity expressed thereon in cubic inches.

Nothing in the above section shall be so construed as to prevent the sale of any of the articles therein mentioned by weight.

In this important propaganda for uniform laws of standardization fruit growers, distributors and manufacturers of containers are loyally supported by fruit jobbers. The Western Fruit Jobbers Association of America, included in its membership many of the principal commission houses in the larger States of the West, has drafted a bill which is proposed to be introduced in the next session of our National Congress. This bill will provide a uniform standard for berry boxes throughout the United States. This jobbers' association is of vast strength and influence and should have the support of all interested parties in pressing their proposed bill to enactment into law. The following is a copy of the proposed bill:

A BILL.

To Fix the Sizes of Baskets or Other Open Containers for Small Fruits or Berries.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled.

"That it shall be unlawful for any person to manufacture or sell or offer for sale baskets or other open containers for small fruits or berries anywhere in the United States or within the jurisdiction of the United States, or to sell or offer for sale small fruits or berries in baskets or other open containers in any State or Territory or the District of Columbia, or ship or deliver for shipment from any State or Territory or the District of Columbia, or to receive in any other State or Territory or District of Columbia from any other State, Territory or the District of Columbia and having so received to deliver for pay or otherwise offer to deliver to any other person any such basket or open container, filled or unfilled, which shall contain when even full less than one dry quart or sixty-seven and two-tenths (67.2) cubic inches, or pint which shall contain when even full less than thirty-three and six-tenths (33.6) cubic inches, one-half pint which shall contain when even full less than sixteen- and eight-tenths (16.8) cubic inches or multiples of the dry quart.

"Provided, that nothing herein contained shall prevent the manufacturers of baskets and open containers for small fruits and berries of other than the above sizes, or the packing of berries and other small fruits in the same, when intended for export to any foreign country and manufactured or packed according to specifications or directions of the foreign purchaser; but if said packages so manufactured are in fact sold or offered for sale are filled or unfilled for domestic use, then this proviso shall not exempt them from the operation of any of the provisions of this Act; and any person who shall violate any provision of this section shall be guilty of a misdemeanor, and for each offense shall, upon conviction thereof, be fined not to exceed one hundred dollars, and on each subsequent offense and conviction thereof, shall be fined not to exceed five hundred dollars.

"Section 2. That the examination and test of such baskets or other open containers for the purpose of determining whether such baskets or other open containers are incorrect within the meaning of this Act shall be made by the Bureau of Standards of the Department of Commerce and Labor, or under the supervision of such Bureau, and if it shall appear from such examination that the basket or other open container is incorrect within the meaning of this Act, the Secretary of Commerce and Labor shall cause notice thereof to be given to the manufacturers. Any person so notified shall be given an opportunity to be heard, under such rules and regulations as may be prescribed, and if it appears that any of the provisions of this Act have been violated by such party, then the Secretary of Commerce and Labor shall at once certify the facts to the proper United States District Attorney, with a copy of the result of the examination of such baskets or other open containers, duly authenticated by the officer making the examination under the oath of such officer.

"Section 3. That it shall be the duty of each District Attorney to whom the Secretary of Commerce and Labor shall report any violation of this Act, or to whom any sealer of weights and measures, or officer of any State, Territory or the District of Columbia shall present satisfactory evidence of any such violation, to cause appropriate proceedings to be commenced and prosecuted in the proper court of the United States without delay for the enforcement of the penalties as in such case herein provided.